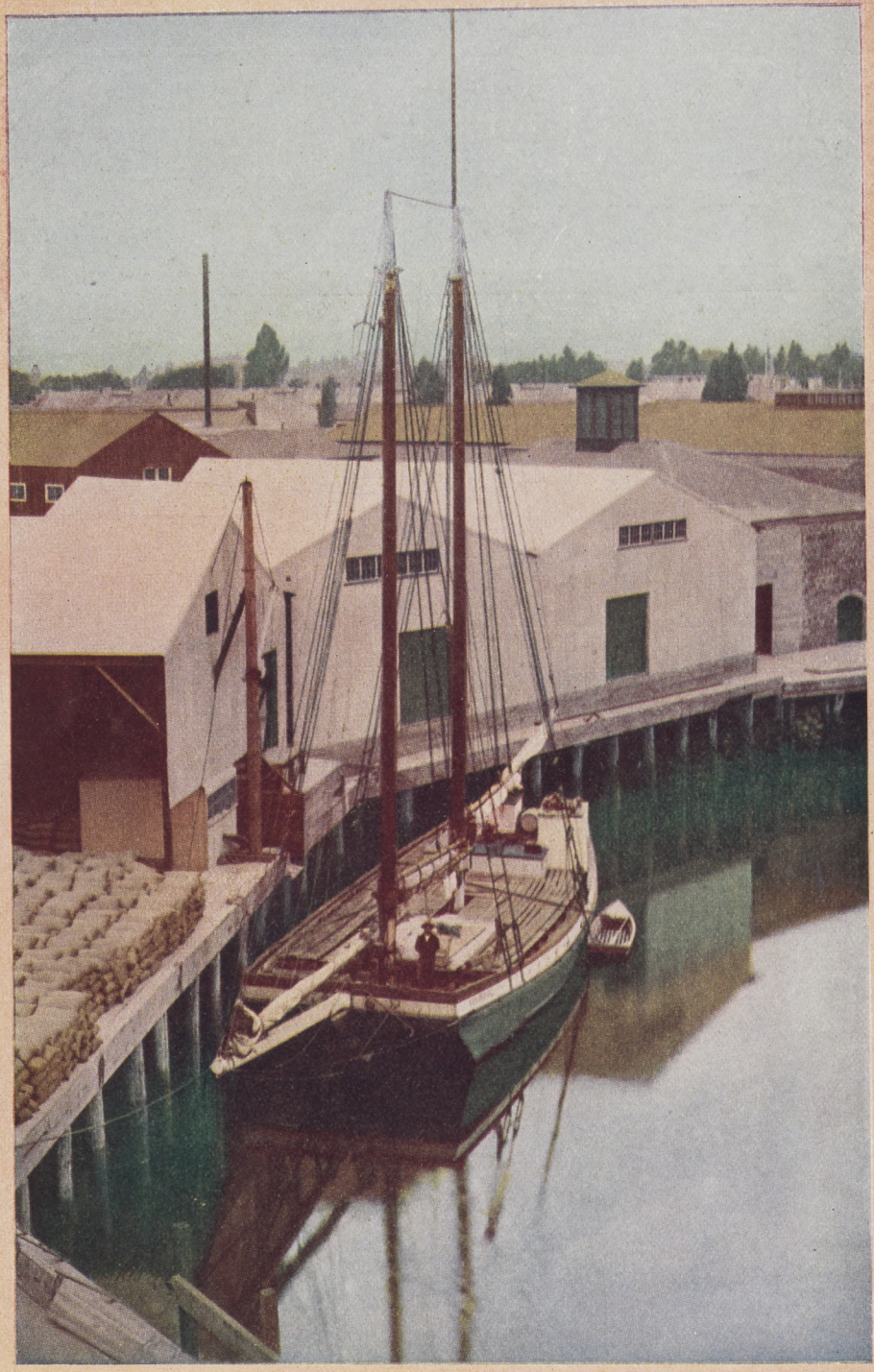
SONOMA COUNTY CALIFORNIA

FRUITS OF MANY VARIETIES GROW IN SONOMA COUNTY



TRANSPORTATION BY WATER AS WELL AS BY RAIL

SONOMA COUNTY CALIFORNIA

BY M. B. LEVICK

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SAN FRANCISCO, CALIFORNIA

SOME IDEA AS TO THE WAY GRAPES GROW HERE

INTRODUCTORY

THE biggest compliment Sonoma County ever won—and there have been a good many—was paid to it twenty years ago. After a long search for the conditions most favorable to his life-work, Luther Burbank selected this county for his home and his outdoor laboratory. Here he has evolved and perfected the thousands of plant creations which have brought him supremacy in his field, including the spineless cactus, the Shasta daisy, the plumcot, the white blackberry, the improved peach plum, the stoneless prune and the pineapple quince.

Sonoma County is the first in California in the production of dry wines and grapes; it is the largest dry wine district in America. It is first in California in the production of eggs and poultry, the city of Petaluma and the county forming the largest chicken center in the world. It is one of the principal hop producers of California, and a leader in the quality and output of prunes. It is the chief supplier of berries in the State, and for general horticulture or general farming it is in the front rank.

The diversity of interests is so great that no one crop failure can affect the community adversely.

One sign of its high position is specialization. All parts of the county have an excellent general average, but nearly each district has a reputation for one particular product.

All this is accomplished without irrigation. There is not an irrigating canal in the entire county.

Here there is a harvest every month in the year. In January there are the olives. The oranges are ripe in February, and the first large shipments of strawberries go out in March. April has the cherries, and May the apricot and the height of the berry season. June is haying time, and the deciduous fruits make July and August busy months. September and October find grapes and hops ready; November has nuts and apples, and the latter crop fills out the calendar.

The variety of interests is signally illustrated by the fetes and exhibitions held throughout the year.

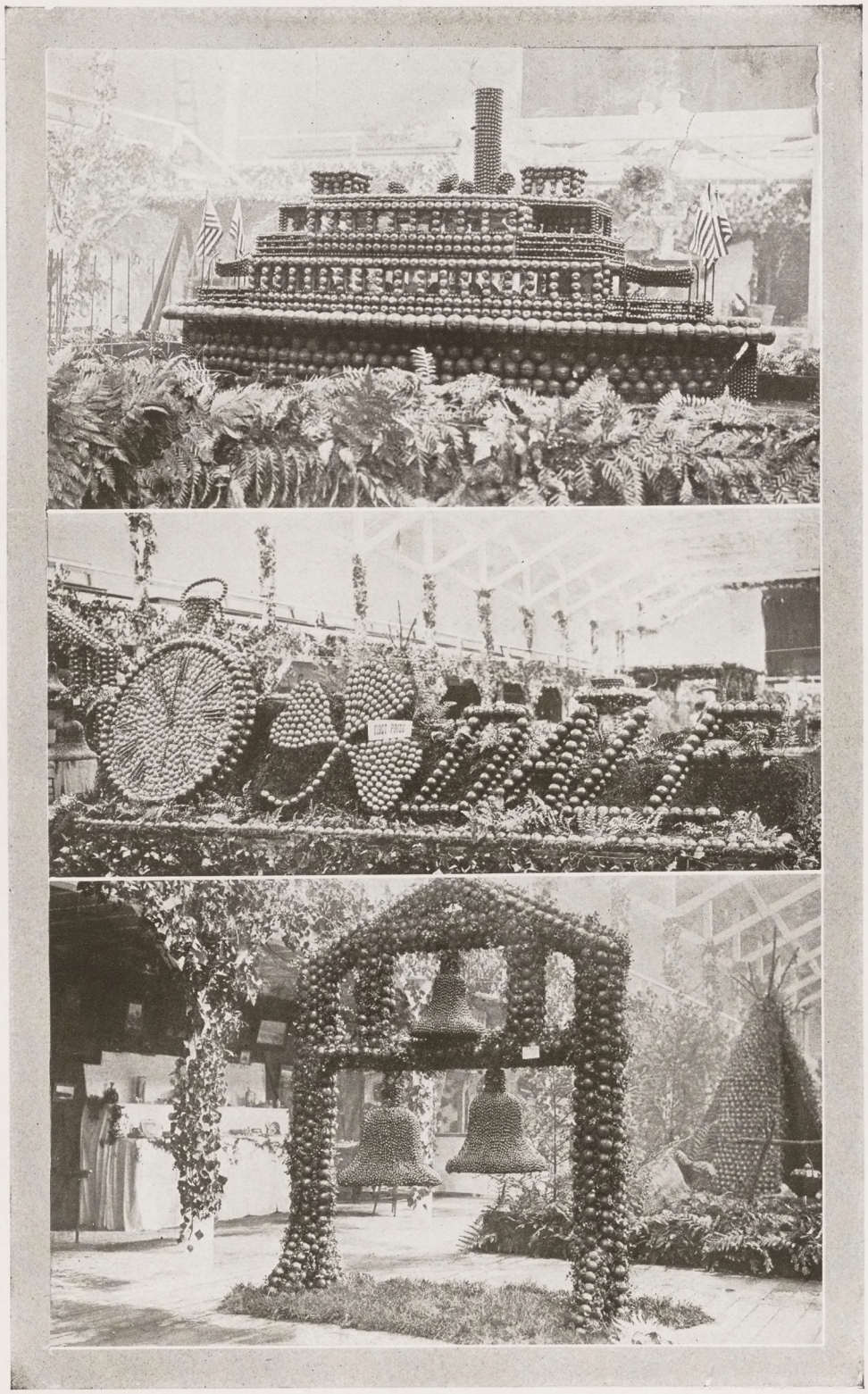
Probably the most generally known is the Carnival of Roses held in Santa Rosa. The flower battles and garlanded processions of this fiesta have been described again and again.

Another distinctive fete is Healdsburg's water carnival, held in the summer. The Russian River, dammed in the spring, forms a two-mile lake. This festival attracts hundreds of participants and spectators.

Petaluma holds a poultry show each year, which is conducted by the fanciers of standard-bred poultry, and who have organized under the name of the Petaluma Poultry Fanciers' Association.

Entries are sent from all parts of the Pacific Coast and over 1,500 specimens of standard-bred poultry are exhibited. These shows do much to stimulate the poultry industry and to encourage the keeping of a better grade of stock.

There have been over forty varieties of poultry exhibited at these shows, which give the prospective poultryman a chance to see the highest types of these varieties, and to select from them the particular breed which suits his fancy.



CLOVERDALE CITRUS FAIR
FERRY STEAMER—"WATCH CLOVERDALE"—MISSION ARCH

LUTHER BURBANK'S HOME IN SANTA ROSA

Competent judges are selected each year to place the awards, and the novice is enabled to get from the judge information which will assist him in perfecting the variety in which he is particularly interested. On the whole, these shows are of great value to all who are interested in the rearing and breeding of high-grade stock.

The annual exhibition of the Sebastopol Gravenstein Apple Show Association is not only the world's sole apple display given in August, but is the only show devoted almost entirely to one variety.

Attention is concentrated on the Gravenstein. Nevertheless, at the 1911 exhibition, displays were made of seven other standard varieties fully matured which thrive in the county, besides a new unnamed variety developed by Luther Burbank. There were plate and box displays of nine kinds of peaches and apricots, three pear varieties, and sixteen plums besides the plumcot being perfected by Burbank. The famous horticulturist already has six hundred varieties of the plumcot.

His exhibit is one of the features of the Gravenstein show, and this year he had, among other novelties, the Opulent, the Beauty and the Snowball peaches, the Winterstein apple, and fifty kinds of plums, of which but three were named. He also showed the Pineapple quince and other new fruits.

The display of flowers at this exhibition demonstrated the great possibilities of Sonoma County in this line.

For nineteen years Cloverdale has held a citrus fair annually. It began in a small way, but the attendance during the five days of exhibition in February, 1911, was over 12,000. A concrete building that cost $13,500 was put up, in 1908, especially for this exhibition, at which, besides oranges, lemons, limes and grapefruit, other products of the surrounding country are shown, including wine, olives, canned fruits, apples and prunes. Burbank usually exhibits here also.

HAPPY SUMMER THRONG IN THE RUSSIAN RIVER COUNTRY

Topographical

The second county immediately north of San Francisco, Sonoma has two water frontages—the Pacific Ocean along its entire west boundary, and for twenty miles in the southeast San Pablo Bay, which connects with San Francisco Bay. This accessibility by water, valuable today, will be of much greater importance with the opening of the Panama Canal, which will enlarge the county's market.

With an area of 1,620 square miles, the county has over 200,000 acres of valley land, largely black loam. As much more of the surface is rolling- or table-land, of sandy alluvial brown soil. The foothills take up a like area. Of mountain lands, 100,000 acres are adapted to grazing, and 80,000 acres are covered with redwood.

Through the heart of the county the main valley runs sixty miles north and south, having an average breadth of twenty-five miles. Though forming one valley, practically, from Petaluma to Cloverdale, in the lower end it is known as the Petaluma Valley, in the central portion as Santa Rosa Valley, and in the north as the Russian River Valley.

There are other valley regions, the chief of which is Sonoma Valley, twenty miles long. Smaller valleys, all rich, are Los Guilicos, Bennet, Green, Alexander, Franz, Rincon, Knights, Big and Dry Creek.

The sea-coast, with sixty miles of shore line, forms a separate strip of territory, with valuable pockets and valleys in the mountains and farming lands about many of its bays. In this field, where there are large holdings still remaining to be cut up, and where land prices are on the whole lower than elsewhere, there is a fine field for the newcomer.

The Summer Boarder

Plentifully watered, the county has one of the most beautiful and best-known streams of the Pacific Coast in the Russian River, whose course is famous as a resort region. Entering at a north central point, this flows southeast through the county and then turns southwest to the Pacific.

Fully a hundred thousand holiday makers spent their vacations in Sonoma County in 1911. Not only the famous Russian River was the attraction—this stream is one long resort from the coast to the county line north of Cloverdale—but other parts of the county as well. Sonoma Valley is a famous summer-home region, and the Mission at the city of Sonoma draws many tourists besides.

Hundreds of farmers add to their yearly income by taking summer boarders. To some of them the vacation season means $1,000 and even $2,000. There are dozens of resorts as well.

Thirteen miles east of Santa Rosa is a petrified forest taking in three hundred acres; this forms a strong attraction. Some of the stone trees are twenty-four feet in circumference and three hundred feet long.

Reached either via Cloverdale or Healdsburg, fifteen miles east of the Northwestern Pacific are the Geysers. Many chemicals tincture the waters of this spa. There is an arsenic creek, and from the walls of one cañon pure sulphur can be scraped off.

The climate has drawn to Sonoma County several important institutions, the largest of which is the California State Home for Feeble Minded Children at Eldridge. This asylum, which cost $650,000, has 1,700 acres of grounds.

At Lytton is the Golden Gate Orphanage of the Salvation Army, where two hundred children help run a poultry farm which supplies a fancy market.

FIVE HUNDRED THOUSAND DOLLAR COURT HOUSE AT SANTA ROSA

OLD MISSION SONOMA

Yesterday and Today

Even for romantic California, Sonoma County has an interesting history. Here the Spanish and the Russians met; at Sonoma city is the northernmost of the Missions, and at Fort Ross is still standing the little church built in 1811 for the Russian garrison stationed there.

Five flags have been raised in this county—more than in any other region in the State. Besides the Spanish and the Mexican, there was the Russian. The Bear Flag of the rebel Republic of California was run up at Sonoma in 1846; here the crisis that ended when the American flag was raised over California was forced to a climax.

The census of 1910 gave a total population of 48,394, a gain of 9,914, or 25.8 per cent. over the 38,480 of 1900.

There are 151 grammar schools in the county, with 253 teachers, and an average daily attendance of 7,117, the enrolment of pupils being 11,625. There are six high schools, one each at Santa Rosa, Cloverdale, Sebastopol, Healdsburg, Petaluma and Sonoma. In these the enrolment is 927, with an average daily attendance of 734 and a teaching force of thirty-seven.

An indication of progress no less important than the extent of the school system is the chain of free public libraries throughout the county. The Santa Rosa and Petaluma libraries are housed in buildings costing over $25,000 each, and each of these libraries has over 16,000 volumes. There is also in Santa Rosa a County Law Library with 3,300 volumes. The principal libraries elsewhere are those in Sebastopol, Healdsburg and Sonoma.

Sonoma's Wealth

The wealth of Sonoma County as evidenced by its banking institutions has been a matter of steady growth. The first bank was established in Petaluma in 1865 by I. G. Wickersham, and since that time the number of

CHICKENS IN BROODER AT PETALUMA

PETALUMA RIVER—WATERFRONT OF PETALUMA

banks has steadily increased until now there are twenty scattered throughout the county.

The combined capital and surplus of these banks is $3,251,151, with total resources of $16,510,291.

This great wealth is distributed as follows:

City or Town	Number of Banks	Capital and Surplus	Deposits	Resources
Santa Rosa	5	$1,276,066	$4,581,911	$6,117,164
Petaluma	5	1,151,704	4,241,606	5,595,262
Sebastopol	3	205,746	862,644	1,091,762
Healdsburg	2	216,284	1,735,416	1,957,048
Valley Ford	1	129,069	268,619	412,786
Sonoma	1	122,043	478,995	601,239
Cloverdale	1	86,143	282,368	368,512
Geyserville	1	33,812	173,135	206,948
Guerneville	1	30,284	129,217	159,562
	20	$3,251,151	$12,753,946	$16,510,291

On November 16, 1909, the total resources were $12,755,351.96, and the total deposits $8,815,030.07.

All of these institutions are well managed and loyal to their clients, keeping in close touch with local wants, and endeavoring to anticipate all legitimate requirements.

In the mental picture of an apple show, a citrus fair, a poultry show, a water carnival or one of roses, one is apt to picture rows of buggies drawn up along the town's curbs. Not so in Sonoma County. Here the auto predominates. Santa Rosa, for instance, has six taxicabs—that is something in a city of its size. The number of private cars is great. Petaluma is not behindhand, with two hundred autos in the city and its suburbs. At the weekly band concert in the plaza at Healdsburg, one

HEALTHY GROWTH OF TOBACCO NEAR GUERNEVILLE

Saturday night in the summer of 1911, sixty-five cars were counted ranged around the square. These are but instances showing how general is the use of the motor-car here.

The Climate

Climate is one of the chief causes of the success of farming in Sonoma County.

The average rainfall is 30.13 inches a year. The records for twenty years show the highest to be 56.06 inches and the lowest 20.71 inches. The rainiest month in those two decades was January, 1895, with 18.42. This was approached only one other time, in 1889, whose December had a record of 15.94. June frequently has no rain at all; July and August seldom have any, or more than a trace. Five Septembers of the twenty have had no precipitation.

The rainfall record by months for twenty years follows:

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Ann'l
1889–90	none	none	none	8.78	4.39	15.94	12.84	4.74	6.15	1.82	1.40	none	56.06
1890–91	none	none	.20	none	none	3.93	1.25	10.49	1.22	2.39	1.23	none	20.71
1891–92	.75	none	.20	.20	1.50	8.64	3.43	5.07	4.14	2.65	3.78	none	30.36
1892–93	none	none	none	1.44	3.37	6.55	4.13	5.56	6.59	2.07	.80	none	30.51
1893–94	none	none	.25	.52	4.82	2.61	9.61	3.78	1.31	1.08	1.84	1.30	27.12
1894–95	none	none	1.50	2.55	.89	13.14	18.42	3.35	2.94	1.35	1.39	none	45.53
1895–96	.33	none	1.48	none	1.83	2.95	10.57	.69	3.53	4.70	1.45	none	27.53
1896–97	none	none	.46	1.50	5.09	6.42	2.27	6.25	5.50	1.03	.57	.83	29.92
1897–98	none	none	.10	1.88	2.18	3.16	1.81	5.32	.66	.38	3.32	.17	18.98
1898–99	none	none	.62	1.07	1.16	1.20	8.77	none	8.57	.67	2.09	none	24.15
1899–00	none	.15	none	5.94	5.44	4.78	4.98	.77	3.72	2.83	.60	.16	29.37
1900–01	none	none	none	4.41	5.60	3.35	6.05	5.95	.90	3.31	1.12	none	30.69
1901–02	none	none	1.17	1.16	4.22	2.25	1.79	14.40	4.54	2.61	1.79	none	33.93
1902–03	trace	trace	none	3.70	5.00	4.43	6.38	2.58	6.40	.60	trace	.03	29.12
1903–04	none	trace	trace	.64	9.65	3.59	1.77	12.23	12.93	2.99	.24	.07	44.11
1904–05	trace	trace	4.39	4.60	2.74	4.50	5.53	4.26	5.59	1.45	2.93	none	35.99
1905–06	none	none	trace	trace	1.97	1.81	10.95	5.24	7.95	.72	3.31	1.23	33.18
1906–07	none	none	.16	none	1.88	6.79	7.57	5.17	11.21	.34	.32	1.00	34.44
1907–08	none	none	.46	.87	.13	6.30	5.61	5.88	1.45	.30	.85	.08	20.93
1908–09	.02	none	trace	1.34	2.12	4.00							

Experience has shown that a rainfall of twenty inches is sufficient to insure success with crops. Adequate rainfall makes irrigation unnecessary.

Along the Riviera, the mean yearly temperature is little different from that of Sonoma County, which has an official annual average of 56 degrees. That of Mentone is 60.9., of Nice 59.5, and of Florence 58.8.

The complete official record for 1910, a normal year, compiled from the Sonoma County figures reads:

Temperature Degrees Fahrenheit			Precipitation		Rainy Days	Sky		
Annual Mean	Highest	Lowest	Total for year, inches	Total Snowfall		Clear Days	Partly Cloudy Days	Cloudy Days
56.0	100	20	17.97	0	69	195	89	81

The following table by months is compiled from the register sheets of a street thermometer at the county seat, covering the period from May, 1909, to August, 1911. This table gives an annual mean of 62.9 degrees, against the annual mean of 56.0 of the federal record. The latter, however, is made under more protected conditions than those of the sidewalk, as is usual.

Month	Absolute Maximum	Absolute Minimum	Mean of the Maxima	Mean of the Minima	Average
January	89	24	77.6	29.0	53.3
February	97	26	83.0	30.3	56.6
March	94	32	85.5	37.8	61.6
April	93	36	85.0	39.2	62.1
May	92	35	81.5	40.3	60.9
June	105	37	91.3	44.7	68.0
July	103	45	93.5	48.8	71.1
August	99	44	91.6	47.1	69.3
September	101	45	96.5	47.5	72.0
October	98	40	89.6	42.2	65.9
November	96	28	84.5	33.2	58.8
December	89	26	80.1	30.5	55.3

The figures show that the climate is enjoyable in all seasons, besides being beneficial to crops. An unusually cold week in the winter of 1910-11 was that of January 8, in which the lowest day temperature was thirty-two and the daylight average was eighty degrees. The coldest night sent the mercury to twenty-six. The following week the range was between forty and sixty degrees. As for the summer figures, the highest was a hundred and five, but this was maintained for only two hours, the thermometer dropping then to ninety. The summer nights are cool; against the twenty-six degrees of the coldest night on record contrast the figure for the warmest night in the period covered by the table—sixty-five degrees.

The dryness of this climate makes a temperature of 105 less uncomfortable than ninety degrees in the humid regions of the East.

The Easterner judges climate by latitude; the Californian, by altitude. Distance north or south from a given point is a negligible factor in weather here. Sonoma County, with valleys, hills and mountains, has a variety of climate, but as a whole the range is not extensive, and the climate throughout the county is equable. Charts prepared by government observers show the annual mean temperature to be practically the same in all parts of the county.

Soils and Land Values

The predominant type of soil is sandy loam. In many parts of the county this is fairly equally divided between light and heavy loam.

There are special conditions, also, applying to individual sections. The Gold Ridge section, of which Sebastopol is the principal distributing point, has a red subsoil which, rich in iron, gives a fine color to the apples which are the leading product. The porousness of the clay makes it easy to keep the ground moist for four or five inches with cultivation.

Throughout the county the character of the soil as well as the climate enables the farmer to do well without irrigating.

In general, there are four classes of land: the bottom-lands, alluvial deposits; the main floor lands of the valleys; the foothill lands, and the higher hill lands. Of the latter there is a large total area distributed in pockets and tributary valleys presenting a good opportunity to the settler.

Along the Petaluma River there is some reclaimed land of great richness.

On the coast, where there is a fertile strip of country with cheaper land prices, there is also some cut-over land offering good opportunities, on which the standing timber is frequently of enough value to offset the cost of putting the land in farming shape.

The cheapest land is, of course, that used for range; this is to be had at $10 up, and sometimes for less. Hill land for farming will average $25. The sandy soil of the hills is well adapted to viticulture.

On the valley floors prices vary greatly. Much good farming land,

unimproved, is to be had at $50 an acre. While the best improved land is held at higher figures, there are thousands of acres held at low figures awaiting the farmer.

In the large valleys the best unimproved land is bringing from $100 to $200. Improved bottom-land, in mature vineyard or orchard, costs from $500 up as a rule. Around Petaluma land for chicken ranches can be had for $100 up. The best improved vineyard land around Cloverdale is to be had at $500. In the Healdsburg country bottom-lands, with fruit, vines or hops, have recently been sold at $1,000 to $1,200. In the Sebastopol territory, land bearing mature trees can scarcely be bought for less than $500; from there the price rises to $1,000 and more.

Many instances can be cited in which the value of the first crop taken off the land paid the purchase price.

Prices are going up as the worth of Sonoma County lands is more generally recognized. For only one example, J. B. Wainwright bought forty-six acres near Healdsburg five years ago for $15,500. In the summer of 1911 he sold the place to neighbors for $31,500, retaining the crop of prunes, worth at least $6,000.

"The value of orchard lands is just beginning to be appreciated," says County Horticultural Commissioner A. R. Gallaway. "One Bartlett pear orchard of 163 trees—less than two acres—brought an income of $1,400 in one year. Cherry trees are often more profitable."

Foothill lands are well adapted to prunes and grapes. With these crops, the foothill product contains twenty-eight per cent. of sugar, against about eighteen per cent. for the valley output. Apples and walnuts are also good crops for the hills.

Transportation

Sonoma County, with an admirable steam and electric transportation system, besides steamer service on the sea side, has direct connection with transcontinental systems. An outlet on San Francisco Bay, through the Petaluma River, puts it in touch with all the world by sea.

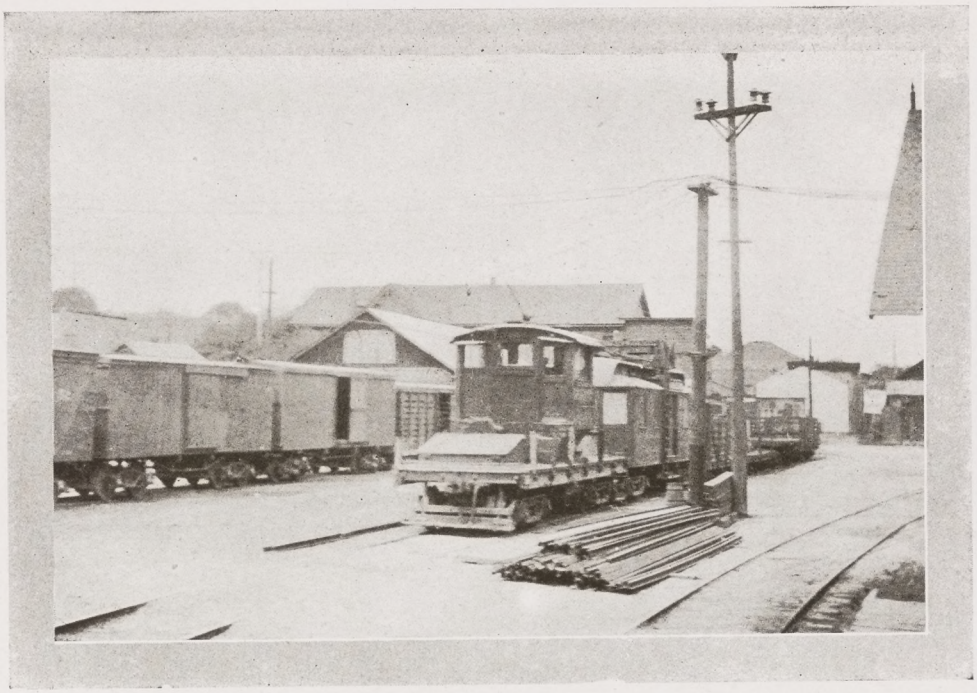
The system of the Northwestern Pacific Railroad is the backbone of the rail service. The Southern Pacific has a line which, running from the heart of the county, forms part of the Ogden Route to the East. The Santa Fe is building a new line which will add to the shipping facilities of the northern part of the county.

The Northwestern Pacific will within a short time open a new line connecting with Eureka and other points on the more northern coast, and the road will eventually be run through to Portland. The main line of this road, with a southern terminal on San Francisco Bay, enters the county below Petaluma, and passes north through Petaluma, Santa Rosa, Fulton, Windsor, Healdsburg, Geyserville and Cloverdale. From Healdsburg running northwest a branch line is under construction. From Fulton a line runs west to Cazadero, Markham, Guerneville and other coast towns, connecting with a third line which forms another side of a great triangle. This last parallels the coast, leaving the county near Valley Ford. There are two other branches in the system, one running from Santa Rosa to Sebastopol, and the other from Petaluma to Donahue.

There is another important line in the Northwestern's system. Proceeding from the same southern terminal, this crosses the Petaluma River near its mouth and swings to the north, going through Sonoma city to Glen Ellen.

Part of this latter line is paralleled by the Southern Pacific road running from Santa Rosa to Shellville, with a branch to Wingo. From the latter point the road heads east, merging with the Ogden Route and

FRENCH PRUNES IN ORCHARD, WHERE CROP NETTED FIVE DOLLARS TO A TREE IN 1911



ELECTRIC RAILROAD YARDS, SEBASTOPOL

giving direct connections with the Southern Pacific lines to the north and south and all other lines in the Harriman system.

The Petaluma & Santa Rosa Railway Company operates an electric system of thirty-six miles, with tide-water connections. Petaluma is the southern terminal; the road runs thence north through Sebastopol to Santa Rosa, with a line to Forestville. For both freight and passengers there is steamer connection at Petaluma for San Francisco, two steamers making daily round trips. As an additional freight outlet, this company has a traffic agreement with the Western Pacific and all its connections east of Salt Lake.

An extension of this electric line is planned from Petaluma to San Francisco Bay. Another contemplated improvement is the lengthening of the Forestville branch west along the Russian River.

This electric service uses twelve passenger cars and seventy-five standard freight cars, the freight traffic keeping four heavy electric locomotives busy. The possibilities of Sonoma County are illustrated by the fact that the company has built ten box-cars, of fifty tons capacity each, at its Petaluma shops.

The Petaluma River is third in importance among the navigable streams of California.

An arm of San Francisco Bay, navigable at all seasons, it leads to the wholesale center of Petaluma. A score of power craft ply regularly from Petaluma to San Francisco, and seventy-five barges and schooners are used in the traffic. The total tonnage of the Petaluma vessels is nearly 15,000.

In 1910 the imports of Petaluma by water amount to 236,060 tons, valued at $12,000,000, and the exports to $164,032 tons, with a value of $9,000,000.

The importance of this river is recognized by the Federal Government, which cares for it.

The coast line is connected with the main valley by stage and wagon

LUTHER BURBANK'S SPINELESS CACTUS

freight, but has an independent transportation service in a fleet of steamers and sailing-boats, giving several shippings a week to San Francisco and other points on the Pacific Coast.

The system of county roads is extensive and well maintained. In all, there are 1,700 miles of highway, reaching every part of the county.

Two Significant Accounts

What can be done in a small way, as well as what is to be expected from operations on a big scale, is shown by these accounts of two ranchers and their properties:

Twenty years ago there was a pharmacist in Chicago who found it hard to make both ends meet. A doctor friend told him he needed a change of environment. "Try California," was the somewhat vague prescription. The pharmacist, H. P. Belford, regarded a change as taking a chance, but he took it, and not long afterward arrived in this county with his family.

He got a forty-acre ranch on a hillside above Cloverdale. The land then was used as range. No one would touch it as farming land. When the folk in the town heard of what the Easterner had done, they laughed.

Facing the handicaps of pioneering—such as pioneering was in the early nineties—Belford worked hard to justify his judgment. His lessons in farming came hard.

"I'd have quit," he says today, "but everybody said I would and I made up my mind to show 'em. And I did. They all know now that my land is all right. What it needed was just work."

Belford reached California with practically no capital and a family. Since then he has not only demonstrated what could be done, but he has built himself a comfortable home and he has put both of his two sons through college.

From a mountain stream, tapped by a ditch, he irrigates all his land save the vineyard and the olive orchard. He has fifteen acres of grapes from seven to ten years old which average four tons to the acre. This is on hill land, remember, where the yield is normally lighter than in the valleys. His biggest yield was got in 1909, when the twelve acres in bearing gave fifty-six and three-quarter tons. His highest returns were made in 1906, when nine matured acres gave him $1,000. It costs him $12 to market the crop from each acre.

In 1910, by making his own wine, he doubled his returns and halved his expenses by not having to haul. He crushed forty-two tons, getting 125 gallons of wine to the ton, and sold the wine at fifteen and three-quarter cents a gallon in Cloverdale.

He has an acre and a half in mixed berries which returns $400 to $700 every year.

In his small peach orchard he has evolved a new variety, the Belford, which comes in the last of September and runs to November 1. Thirty trees of this variety in one year gave him a hundred boxes, sold at $1.50 to $2.50 a box.

Here is an item to mark: one-sixth of an acre of alfalfa, irrigated, yielding the equivalent of seven cuttings if pasturage is included, keeps his cow throughout the year. Six cows to the acre is something like a record.

On his ranch there are twenty Mission olive trees. In 1909 the mature trees, fourteen in number, gave 235 gallons of oil, sold at sixty-five cents a gallon. The 1910 production was eighty gallons, at seventy-five cents. In 1911 the twenty trees gave 150 gallons.

He also has a small citrus grove: seventy-five orange trees and twelve

PRUNE ORCHARD IN BLOOM

RESIDENCE IN SANTA ROSA

lemon trees. The oranges give from one to seven boxes to the tree. There are four lemon trees which gave in one season $20 each.

Belford took his chance, it is true, twenty years ago, but the opportunities are not all gone. In Sonoma County there are thousands of acres, some as unpromising in looks now as Belford's ranch was when he first got it, with which as good results can be obtained if as good work is put on.

William J. Clements of the city of Sonoma has a ranch typical of what can be done on a large scale not only in the Sonoma Valley, but in practically any part of the county's agricultural regions.

He is one of the few fruit men who irrigate, using a four-inch pipe with a twenty-horsepower gas-engine, throwing 750 gallons a minute from a creek. It costs him fourteen cents an hour to operate this pump, which irrigates fifty acres thoroughly in two weeks, covering six acres six inches deep every day. In its first year the pump added one third to the weight of the ranch's fruit shipments, and the product brought higher prices. For example, Clements formerly left, with his Gravenstein apples, one on a bud. Irrigating, he leaves four or five, but gets bigger fruit worth more money.

On this ranch there are forty acres of Bartlett pears which average four tons to the acre. The highest yield was 175 tons. The price for five years has averaged $40 a ton, the lowest being $20, and the highest $57. Pruning costs ten cents a tree, spraying six cents, picking $2 a ton and plowing and cultivating $5 an acre.

Besides the largest quince orchard in the world, Clements has much land in other fruits. He has ten acres of apples, the varieties, mostly early, including the Gravenstein, the Bellefleur, the Astrakhan and the Red June. A common yield is ten tons an acre; the average for years has been seven

THERE ARE TWENTY THOUSAND ACRES OF ORCHARDS IN SONOMA COUNTY

and a half. In 1911 Gravensteins brought $2.25 a box. The expenses per box are thirty-five to forty cents.

There are three acres of Royal Anne and Black Tartarian cherries whose yield averages between three and four tons, sometimes running to five tons an acre. His price for years has been between seven and eight cents—above the general average—the highest being twelve. There is no spraying. Besides cultivating, the only expense is picking, which costs one cent a pound.

Five hundred trees of canning plums—about five acres—give thirty to forty tons a year, selling at $15 to $40 a ton. There is practically no expense save cultivation and pruning; $20 to $25 an acre covers the entire outlay.

Five acres of Crawford peaches average six tons to the acre, the highest yield being ten. The price at the cannery for five years has averaged him $30 a ton. Sold by the box, the peaches bring in $60 a ton. The net profits an acre range between $125 and $175, allowing $15 an acre for pruning and $20 for other expenses.

What figs will do is shown by seven trees of blacks, planted eighteen feet apart. Without fail, they bring in $200 a year, giving a ton and a half, or from 200 to 300 boxes. Weighing ten pounds each, the boxes bring from $1.25 to $3.25. These figs receive practically no care.

Besides the orchard, there is a thirty-acre vineyard, planted to Tokay grapes. The yield is two to five tons to the acre, on ordinary land. Shipped in twenty-pound crates for the Eastern table market, these grapes bring seventy-five cents to $1 a crate. Returning from $200 to $500 an acre, they need only pruning, at $2 an acre; plowing and cultivating, at $5 an acre; and picking, at $2 a ton.

One of the Minority

While irrigation is not necessary and is little practised, some farmers use the water from streams on vegetable gardens and there are few who irrigate on a large scale.

One of the latter is Robert Hall of Sonoma city, who owns 190 acres. He has a six-inch pump, run by an eight-horsepower portable gas-engine, which throws 600 gallons a minute from Sonoma Creek. The outfit cost $1,000. It takes fifty-two days to irrigate the 115 acres on the ranch which are watered, distillate at eight cents a gallon costing $1.50 for a ten-hour day.

This pump, according to the owner, has added greatly to the value of the ranch, the increase in the cherry output alone in the first year paying for the cost of the pump. It increases the size and the tonnage of fruit and prevents its falling. With Hall's peaches, for instance, it saves sixty per cent. from becoming second-grade fruit.

The County's Fruit

Sonoma County, famous as a producer of fruit, has over 20,000 acres in deciduous and citrus fruits and nuts, exclusive of the immense vineyard acreage. In the spring of 1911, according to the County Horticultural Commissioner, 3,100 acres were planted to fruit trees. Though there are many nurseries in the county, they can not fill the demand, so great is the increasing interest in fruit.

The official tabulation of new trees set out last spring reads: Prunes, 140,000 trees; apples, 120,000; peaches, 10,000; pears, 15,000; plums, 5,000; cherries, 14,000; apricots, 2,000; walnuts, 2,500; almonds, 250; citrus, 300; miscellaneous, 650. The total is 309,700.

The production is immense. In 1911 four shipping points, Healdsburg,

DRYING PEARS IN SEBASTOPOL REGION—PRUNE-DRYING NEAR HEALDSBURG

SOUTHERN PACIFIC COMPANY DEPOT AT SANTA ROSA

Geyserville, Windsor and Santa Rosa sent east ninety-five cars of prunes, plums, apples, peaches and pears, and there were heavy shipments from other towns as well.

What this means to the farmer is more apparent when it is considered that the net profits on the majority of orchards are from $200 to $600 an acre. The net returns are seldom less than $100; more often they go above the $600 mark.

Besides the large direct profits, there are several valuable by-products turned off these orchards. Chickens run under the trees till the fifth or sixth year of the orchard and are big payers. Berries pay handsomely between the rows and their care helps the trees. Corn and other vegetables as well as melons are extensively grown in this manner.

That this doubling of crops is common indicates the high average of soil quality in the county.

The instances of profits cited in this booklet, under other headings as well as fruit, have not been selected to show only the best that can be done, but to give a general idea of average conditions.

Prunes and Plums

Even in California, the area adapted to the prune is limited. Sonoma County is one of the best fields in the world for its production.

Not only are the profits high, but this crop is easily handled. Irrigation is unnecessary; there is little or no spraying in Sonoma County; the trees are, in the majority of cases, not pruned. And the prune has one big advantage practically to itself: the windfalls are as good as the fruit on the tree.

The production is large. One region alone, within a ten-mile radius

of Healdsburg, sends out 8,000 tons dried a year, or one-seventh of the entire average output of California for the last five years.

The prune is the principal fruit of the county in point of acreage. In 1911 there were in all 7,831 acres, and the planting in the spring of 1911 was 140,000 trees, against 120,000 for the next nearest fruit in acreage, the apple.

Plums are profitable also. The county has 550 acres of these, including most of the principal varieties, and last spring, 5,000 young trees were put out.

The best matured prune orchards, on bottom-lands, sell at from $750 to $1,200 an acre, but even at these figures they pay from fifteen to twenty per cent. net profit a year.

For five years the average price has been a three and one-half cent base. At the end of the 1910 season the price jumped to ten cents. At five and one-half many crops have sold for $140 a ton.

The average size for the entire county is from fifty to sixty to the pound, but much higher sizes in big lots are common.

With good trees, the average yield is between two and one-half and four tons to the acre, green. The shrinkage in drying is two and one-half or three to one with the Imperial variety, and two or two and one-half to one with the French prune.

The Imperial, which is gaining in popularity, at times sells at $200 a ton; $255 has been reached. These prunes do well on bottom-land, but upland is declared the best for them.

One hundred and ten tons of green fruit from ten acres was one year's yield on the ranch of John McClish near Healdsburg.

In 1910 J. B. Wattles of Healdsburg got fifty-eight tons of dried prunes from thirty acres, and the average size of the whole crop was forty-eight. Sold at $128 a ton, they brought in over $7,400.

Another Healdsburg grower is Clarence Hall, who in 1911 got ninety tons dried of French and Imperials from thirty acres. His receipts were $14,000, the average price delivered being $135. For a mile and one-half this grower had to pull down his rail fence to get props in this season. Picking cost him six cents a box. A man and his wife working in this orchard picked 163 boxes in one day.

E. R. Sawtell of Healdsburg has 500 French trees on four and one-third acres. In 1910 there were 400 trees in bearing, and they brought in $1,000 at $92 a ton.

Near Cloverdale, C. E. Humbert and Charles Edwards rented 1,000 acres, mostly range, at $900 a year. In the five years they have had this lease, seven acres of prunes have paid the rent of the entire ranch. In 1911 thy received $2,671 for the prune crop.

Near Santa Rosa is a twenty-acre orchard owned by F. A. Brush in which, in 1911, the size for the entire crop averaged forty-three. The gross returns this season were $350 an acre. The usual net returns are $200 to $250 an acre, the expenses being $50 to $75 an acre. The heaviest yield from this orchard was nine tons green to the acre, the equivalent of four and one-half tons dried. This was obtained in 1910. In 1911 each tree was worth $5.

A. F. Hopke of the city of Sonoma has five and one-half acres in French prunes which in 1910 gave ten tons, of an average size of fifty-five, which brought $130 a ton. The 1909 yield was nine tons, sold at $80, and that of 1911, twelve tons averaging in size fifty-three.

Twelve acres of mixed plums net Robert Hall of Sonoma City $100 to $125 per acre.

The Apple

Distinctly an apple country, Sonoma County has, according to official figures, 4,002 acres in this fruit. Over 120,000 new trees were set out last spring, and the yearly number is increasing fast. Within the last few years there has been an amazing development which has put this region among the leading apple producers of the world.

Not only is this a general apple region, but it has a specialty—the Gravenstein, the earliest apple on any market.

There is a century of success behind the apple of Sonoma County. At the Sebastopol Gravenstein Apple Show of 1911, there were exhibited apples from trees planted by the Russians at Rort Ross in 1811; these trees are still bearing well. At the Flat Ridge Ranch, like Fort Ross, on the coast, there are other trees almost or fully as old.

Near Healdsburg, J. W. Ward has a foothill ranch on which apple trees he planted forty-nine years ago are flourishing, bearing largely although they have had no special care in years.

The Gravenstein is found in its perfection in the Gold Ridge section, of which Sebastopol is the chief town. Sebastopol is a name that already is a factor in the world's fruit markets, though it is only within half a dozen years that the Gravenstein has jumped to the place its merits deserve.

This variety is not confined exclusively to the Gold Ridge, however; other sections of the county are entering the field. Healdsburg is already a carload-lot shipper and Windsor is following close behind.

The Gravenstein has a monopoly on the apple market for a full month at the beginning of the season, before the public's taste has had a chance to wane. At Sebastopol, the earliest shipment on record was made July 1, but ordinarily packing is begun between July 3 and July 7. In 1910 the crop was all shipped by the end of August; in 1911, though the season was late throughout California, the crop was practically gone by September 1.

The first apple exhibition ever held in California was that given in 1910 by the Sebastopol Gravenstein Apple Show Association, organized early in that year. The show opened August 13 and lasted five days. In 1911, with a later season, the show opened on August 21. In each exhibition there were displayed several thousand boxes of apples, all produced in Sebastopol's territory.

Luther Burbank has given his endorsement to the Gravenstein. On May 9, 1908, he wrote the following letter to A. B. Swain of Sebastopol:

"Complying with your request of April 29th, the Gravenstein apple has, above all others, proved to be the money winner in Sonoma County. It is a healthy, vigorous tree. It always bear a good crop, never overbearing as many varieties do; is of the best quality of all known apples taking into account all uses to which the apple is put. It is the best drying apple for quality and appearance when dried. It is handsome in appearance, good size, superior quality for desert or cooking, and especially for market.

"It can not be raised successfully in the hot valleys or southern California. Sonoma County seems to be its home.

"It has often been said that if the Gravenstein apple could be had throughout the year no other apple need be grown."

The price of Gravensteins has been rising steadily in the last few years. In 1908 the average was $20 a ton loose; in 1909 it rose to $35, and in 1910 to $40. In 1911 the first apples brought $60 to $70.

Besides being in demand in American markets, the Gravenstein is shipped heavily to Australia, England and Germany. This is but one of the country's crops which will be enhanced in value by the opening of the Panama Canal. With ships running through the canal, the Gravenstein will be the first apple to reach the European markets.

APPLE ORCHARD IN THE COUNTRY BETWEEN PETALUMA AND SEBASTOPOL

GOLD RIDGE—APPLES SO THICK BRANCH IS HIDDEN

The soil of the Sebastopol or Gold Ridge district is the principal cause for its being the home of the early apple. This is a sandy loam from eighteen inches to three feet deep, resting on a clay subsoil which retains the moisture, making irrigation unnecessary. Comparatively no fertilizer is used, and the growers here never smudge. It is claimed that apples are produced here with the least expense of any region in America, the only essential work being to keep the orchards clean. There is comparative freedom from pests, the scale and the codling-moth giving no trouble.

Experts advise Sonoma County growers to concentrate on the Gravenstein, the Spitzenburg and the Jonathan varieties. The price of the latter two is ordinarily as good as that of the Gravenstein, which is usually gone before September 1st. The others are marketed as a rule by October 15th, thus securing an early market, which is made keener by their attractive appearance and flavor. The Alexander sells well at a good price, but is not regarded as being in the same class with these three varieties.

If the Gravenstein is the most talked-of apple of the county, it is not the only successful variety. Among the others well represented, in the Sebastopol district as well as elsewhere, are the Spitzenburg, Jonathan, Wagner, Newton Pippin, Rome Beauty, Bellefleur, Baldwin and Rhode Island Greening.

The quality of the general apple product of the county was signally recognized in 1910 when, in competition with the entire State at the Apple Annual held in Watsonville, the Sonoma County exhibit took thirty-three awards, including twenty-four gold and silver medals, three cups, a cash prize, three blue ribbons and one red, and special prizes.

These were the awards won by the display sent to Watsonville by the Gravenstein Apple Show Association of Sebastopol: a gold medal for the best carload of any one variety (Spitzenburg) apples; a silver medal for the best carload of mixed varieties; gold medals for the best ten boxes of

CHERRY TREES WHICH PRODUCE HALF A TON A YEAR

Jonathans, of Hoovers, of Wagners, of Arkansas Blacks, of Gravensteins and of mixed varieties, besides a gold medal for the best ten boxes exhibited (a sweepstakes); silver medals for the best ten boxes of Newtown Pippins, of Baldwins, of Spitzenburgs and of Rome Beauties; gold medals for the best five boxes of Wagners, of Arkansas Beauties, of Baldwins, of Rome Beauties, of Hoovers, of Spitzenburgs and of Gravensteins; a silver medal for the second best five boxes of Bellefleurs, and gold medals for the best single boxes of Rome Beauties, of Wagners, of Baldwins and of Gravensteins. The exhibit also took three cups for the largest and best display from outside the Watsonville region, and a cash prize of $25 for the best exhibit from a hundred miles or more from Watsonville. In addition, the directors of the Watsonville Apple Annual presented a special trophy to the Gravenstein Association as a mark of appreciation of the aid given in making the Watsonville show a success.

Plate displays took three firsts (blue ribbons) and one second (red ribbon).

All these apples were put in storage in August and held until the exhibition opened, in October. Yet many of the displays scored 100, and the average of all the points on the awards was 95.4 per cent., there being only three displays falling below 92 per cent.

The canneries are large buyers of apples, in 1911 paying $20 a ton. The average price for the last five years has been from $10 to $12 a ton. The canneries prefer the Rhode Island Greening, but use all varieties.

Dried apples are an important product of the county. The average price for drying apples in recent years has been $10 a ton, but in 1911 they brought $15 and $16. The majority of the growers do their own drying, utilizing in this manner all kinds of culls. Evaporators are generally preferred to sun-drying. Seven pounds of green apples make one pound of dried

There is little waste. Early windfalls, thinnings from the trees and the cores and peelings as well are sold to the juice works. Vinegar factories take the cores also, and small apples have a market in the jelly works.

A well-maintained Gravenstein orchard twelve years old should net $200 an acre or better with the price at $20 a ton, according to the pioneer growers. The price at times has touched $70 a ton; and the Gravenstein is a sure crop.

A forty-year-old Gravenstein on the Harbin Ranch, Forestville, in 1910 yielded fifty-three packed boxes, and a tree of equal age on the ranch of F. A. Brush of Santa Rosa produced sixty-two boxes.

What can be done with a small acreage is shown by the ranch of Mrs. Ida S. Hunt of Sebastopol, who has ten acres, five of which are planted to Gravensteins now in full bearing, sixteen years old. Her exhibits took the sweepstakes prize at the Watsonville Apple Annual in 1910, and in 1910 and 1911 took first prizes at the Sebastopol show. In 1909 Mrs. Hunt kept strict account of her returns, and found that at a valuation of $500 an acre she made thirty-four per cent. net, getting 1,750 boxes besides the culls. In 1910 her net profit, with the same valuation for her land, was twenty-five per cent. Her average yield an acre is 350 boxes; the highest in recent years, 463. The average price of the last five years she puts at $1.55 a box; the highest, $2. The average gross returns an acre are $542, though she has made $600. Her expenses average $130 an acre, the cost of picking being about $25 an acre. Cultivation she puts at $6 an acre; spraying, $10; pruning, $9; packing, $80. Her average net returns for five years have been $412 an acre. She has made $470 net an acre.

C. E. Hotle of Sebastopol has one hundred Gravenstein trees sixteen years old, one hundred ten years old and twenty thirteen years old. In

1910 he got in all thirty tons of apples, sold at $40 a ton loose. Thus three acres returned him $1,200.

"There are thirty other orchards around Sebastopol which did as well," says this owner. "In 1909 the one hundred trees, then fifteen years old, gave me 1,000 boxes. The trees began bearing heavily at nine years, and since have never failed to have an immense crop. The cost of caring for the orchard is about $50 an acre, including spraying, burning brush, hauling apples, and so forth. I plow twice, spray four or five times, cultivate twice and harrow five or six times. Picking costs me $2 to $3 a ton."

Seven and a half acres of Gravensteins in 1910 yielded R. P. Hunt of Sebastopol 2,700 boxes packed, besides the No. 2, dryer and vinegar apples. His gross receipts were $3,800; it cost $800 to put the crop on the market. The net profits were $400 an acre. Material, labor, packing and delivering, this grower figures to cost thirty-five cents a box. In 1911 his crop was somewhat lighter, but the price was higher, Hunt receiving $2 for a four-tier box f. o. b. Sebastopol, and $1.75 for a four and one-half-tier box.

A mixed orchard of twenty acres pays E. E. Morford of Sebastopol seventeen and one-half per cent. net on $1,000 an acre. He has Wagners which have retained their flavor through ten months of cold storage. In 1909 he had 190 Gravenstein trees, fourteen to thirty-eight years old, which netted between $800 and $900 an acre. In 1910 his crop was light, but he netted $400 an acre; in 1911 the profit was $1,000 an acre.

Four years ago A. O. Nelson bought thirty acres near Sebastopol at $333.33; this land is now worth $1,000, he says. There are but six acres in bearing apples, as much in young apples, and the rest in prunes. He has one acre—fifty-one trees—in Skinner Seedlings. In 1911 he sold over 1,000 boxes from these trees, at $1.50 a box, of which $1.10 was profit.

Near Forestville is a fifty-seven-acre ranch owned by George A. Ross. There are fifteen acres in full bearing Gravensteins, the rest being in grapes and year-old Gravensteins with a few Jonathans for pollenization. The mature trees, now ten years old, pay fifteen per cent. on $1,000 an acre. They bore well in their seventh year.

Thomas J. Pilkington of Sebastopol has ten acres in full bearing which have yielded him one hundred tons. Formerly he sold the fruit on the trees, but is now picking, packing, hauling and marketing direct, with the result that his net returns jumped from $750 in 1908 to $1,750 in 1910.

The Cherry

How excellent Sonoma County is for cherry-growing can be judged from the instances below: In the county there are 705 acres planted to this fruit, and in 1911 there were set out 14,000 more trees.

The Royal Anne, as big as an Eastern plum and having a small pit, is the principal variety, but the Black Tartarian and the Yellow Buttner are also popular.

Eight acres average four tons each for F. W. Maddocks of Craton, and he has secured over five tons to the acre. This grower has averaged $110 a ton for the last five years, the highest price being $150 a ton. In 1911 he got $120. His gross returns are usually $500 an acre, though they have been $600. His expenses are $5 an acre exclusive of picking, which costs him $15 a ton. Pruning is unnecessary and there is little spraying. This leaves his average net returns an acre $400, with $600 for the maximum. This orchard, well maintained and in full bearing, is on land especially adapted to cherries. Picking the right land, here as everywhere else, is the first step toward success.

For ten years the average net profit on a hundred Royal Anne and Black Tartarian trees has been $150, on the ranch of F. A. Brush of Santa

Rosa. In fifteen years this acre has failed only once. In 1909 it returned $700 net, and in 1910 and 1911 over $350. The 1909 yield was seven tons. The average price is five cents a pound but frequently it goes to seven.

Lowell Brothers of the city of Sonoma have twenty acres which for years have averaged two tons to the acre. One year they produced 112 tons, or over five and one-half tons an acre. The crop has been contracted for five years at five cents a pound. The highest price secured in recent years was twenty cents a pound. In 1911 the maximum was sixteen cents, while the average was five cents for whites and six and a half for blacks. Expenses in this orchard are comparatively light; there is no spraying and trees here are seldom pruned after the fifth year. It costs one cent a pound to pick and pack.

Irrigation adds one-third to the size of his cherries, says Robert Hall of Sonoma city. He has principally Black Tartarian and Royal Ann varieties, and he gets fourteen to eighteen tons to the acre, averaging $200 an acre net profit. In 1910 he sold at $140; one tree returned $64. For several years the price has been around five and six cents a pound. "Expert pruning is half of my success," this grower declares.

The Pear

That success is general with pears is indicated by the county statistics, which show that while there are 1,182 acres in bearing, within the last year 15,000 young trees have been set out in orchard form.

The Bartlett is the favorite variety, yielding from eight to twelve tons an acre with proper care.

Lowell Brothers of the city of Sonoma have eight acres of Bartletts. In 1908 these yielded seventy-three tons; in 1909, sixty-seven; in 1910, fifty-eight; in 1911, forty. The average yield of these years is fifty-nine and one-half tons, or about seven and one-half tons an acre. In 1908 the average price was $35 a ton for the first grade, and $26 a ton for dried. In 1909 the prices were $38 and $25. In 1910 the No. 1 grade brought $46.50 and the windfalls $21, and in 1911, $50 and $24. One-third are windfalls, as a rule. Drying costs $6 to $7 a ton; one ton of green fruit yields four hundred pounds dried. In fresh shipments, in 1910, No. 1 Bartletts netted above commission $1.15 a box and No. 2's fifty-two cents a box.

Two hundred dollars to $250 an acre are the returns got by Frei Brothers of Sebastopol from seventeen acres of early pears, planted 108 to the acre. The average crop is a hundred tons. They sell at $40 a ton as a rule. They spray twice a season, at a cost of ten cents a tree each time. Pruning costs five cents a tree; plowing, $2.50 an acre; cultivating, $2.50 an acre.

On bottom-land, near Healdsburg, E. R. Sawtell has 150 pear trees, of which thirty are young. They are Bartletts. In 1911 he got sixteen and three-fourths tons, receiving gross $720 at $45 a ton: they were sold for packing and drying. Picking was his only expense—this costs $10—all other work being done by the owner.

In 1911 Healdsburg growers sold at $43 and $45 a ton. At the former price, Frank A. Petray got $562 gross from 160 trees and C. Mumme, at $45, got $1,070, his 340 trees giving twenty-seven and one-half tons. These Bartletts are all on bottom-land.

Fifteen acres of Bartletts near Sonoma city yield Robert Hall on the average 150 tons, of which forty are windfalls; the crop is worth in all $6,000 as a rule. In 1911 the price was $50 a ton; in 1910, $47.50; in 1909, $45.

PART OF THE SANTA ROSA VALLEY, SHOWING PRUNE ORCHARD IN FULL BLOOM

The Peach

The peach helps to maintain the high standard of Sonoma County horticulture. With 2,500 acres officially credited to it, this fruit has a product estimated by the county authorities to be worth in all $300,000 a year.

A good yield in Sonoma County is from eight to twelve tons to the acre; the general average is not greatly below eight. For five years the average price has been $28 or $30 a ton. In 1911 freestones brought $30 and clings $40 to $50.

Besides having conditions in general admirably adapted to this fruit, the county has contributed at least one variety besides the Belford to horticulture: the McClish Cling originated near Healdsburg.

Frei Brothers of Sebastopol have twenty-five acres in peaches, their varieties including the Muir, the early and the late Crawfords, Dibbles, Picketts, Salaways, and Orange and Wylie Clings. The sun dries nearly all their fruit, and for several years their average net returns have been $100 an acre. Sometimes they net $200. In 1911 their clings were worth $40 a ton and their freestones $35.

Five thousand peach trees from one to sixty years old are on the ranch of E. Taeuffer of Healdsburg. On river bottom-land he has twenty-five acres in full bearing. All varieties are represented, but the Muirs are in the majority. His yield, both Muirs and clings, averages eight tons to the acre; sometimes he gets fifteen tons. For five years his selling price has ranged between $20 and $40 a ton, the average being $30. From their tenth year his trees have averaged $200 per acre gross a season, or $150 to $160 net. Plowing, cultivating, pruning and spraying cost $20 an acre; picking costs $2 a ton. Some of his clings have run four to five pounds—a pound and a quarter apiece. His Muirs average half a pound a piece in a normal season. Between the rows he has got twenty tons of pumpkins to the acre, some of the pumpkins going 150 and 175 pounds each. He has raised fifty-pound watermelons in the same way. In 1910 he had eighteen acres of corn between the trees, getting one and one-half to two tons to the acre, worth $20 to $30 a ton.

Robert Hall of Sonoma city has fourteen acres of Nicholl Orange Clings, ten of Phillip Clings, five of freestones, three of late Crawfords and twelve Runyon Orange Clings. His average yield of freestones is fifty tons from eight acres, and of clings, 300 tons. The Tuscan, the first of the clings, is now most in demand, having supplanted the Phillip Cling in this. The best price this grower ever got for clings was $60, received in 1909; this was unusual. Twenty-five-pound boxes bring seventy-five cents to $1.25, averaging $1, or $80 a ton for the jobbing trade. This is one of the few irrigated ranches in the county.

The Fig

Nature has given the Sonoma County fig grower a monopoly on the market for three weeks in the middle of the season, after the first crop from competing points has been sold and before the second crop is ripe.

Although the fig is profitable and does excellently here, there is an exceptionally good opening for further development, the total acreage in the county being only fifty-one.

The fig is frequently used as a protection around the sides of vineyards and in the avenues, in this form being worth from $1 to $1.50 a tree net yearly. In orchard form it usually nets more than $100 an acre. As a rule there are two crops a year.

ORANGES AS THEY GROW NEAR CLOVERDALE, SONOMA COUNTY

ORANGES NEAR CLOVERDALE

How much better than this can be done is shown by the thirty-six trees, some of them forty-five years old, on the ranch of Lowell Brothers near Sonoma city. Between a half and a third of an acre, these trees pay at the rate of $2,000 an acre, their average yield being 1,000 boxes. One year they gave 1,400 fourteen-pound boxes. A single tree has been worth $60 a season, giving forty boxes. The average price received by these growers for five years has been $1.25, of which $1 is net, after the expressage (eight cents a box to San Francisco), drayage, ten per cent. commission, etc., are paid. Picking and packing costs six cents a box.

Thirty-two black fig trees average Robert Hall of Sonoma city 640 boxes of twelve pounds each. The price is usually between $1.75 and $2.50 for this grower; in 1911 he sold some at $3.

The Olive

Olives and olive oil from this county have twice been adjudged among the finest produced in the world. The late A. M. Coomes of Cloverdale took gold medals at the St. Louis World's Fair and the Lewis and Clark Exposition at Portland for pickled olives, and oil exhibited by Mrs. J. A. Kleiser of Cloverdale also took gold medals at those fairs.

The olive, a hardy and long-lived tree, produces between two and six tons to the acre. The average price is above $40 a ton, and in some years reaches $100. Some growers contract for several years at $40 a ton, the buyer picking and preparing the berries.

The favorite varieties are the Mission, which has been grown in Sonoma County for nearly 150 years, the Manzanilla and the Nevadillo Blanco.

The matured trees within the county make 1,210 acres.

Other Fruits

Five hundred acres of apricots in the county are giving such returns that in the spring of 1911 there were put out over 2,000 new trees. Fourteen acres of apricots on the ranch of Robert Hall of Sonoma City average one hundred tons, the price for canning and the open market being between $30 and $35 a ton.

Though the market is restricted, nectarines are worthy of attention. Sonoma County has nine acres of them.

The largest quince orchard in the world is that of William J. Clements at Sonoma city. He has twenty acres of the orange and the apple varieties, planted 132 trees to the acre. Unirrigated, these yield on an average three tons to the acre. The highest yield he has had was 150 tons in all, returning $2,400. The average price for five years is seventy-five cents for a fifty-pound box, f. o. b. Sonoma city, or $30 a ton. In 1911 he got $1.10 a box; in 1909 his highest price, $1.25, or two and a half cents a pound. Year in and year out the net returns per acre are $75. Picking costs one cent a box or less.

Near Sonoma City Lowell Brothers have sixteen persimmon trees from eight to sixteen years old which average twenty boxes a year, or 500 pounds. The price runs between ninety cents and $1.25 a box, the average net profit above commissions being $1.

Nuts

One of the chief counties in California in the production of the walnut this county has 300 acres planted to this tree, besides 2,500 young trees. The almond is second in importance among the nuts, with ninety-eight acres. The walnut, however, is in no danger of losing its lead, so well adapted is the county to its production.

On the outskirts of Santa Rosa there is a fifty-five-acre walnut grove, owned by Mrs. E. M. Vrooman, including 1,000 grafted Franquette trees. When only three years old this grove yielded eighty-two pounds. Its yield for several years, beginning when it was five, was carefully watched, the returns being 3,700 pounds; 6,000; 12,325; 24,314; 46,409 and 90,205.

The Citrus Fruits

For more than fifty years citrus fruits have been grown in this county; General Vallejo, one of California's historical figures, and Nicholas Carriger cultivated the first orange trees here.

Citrus culture in Sonoma County, while not practiced extensively on a commercial basis, has a definite and important value as an indication of the worth of the climate. That good results can be secured even with the lax methods customary in home-orchards is a strong recommendation.

While there are a few groves—the largest of which embraces ten acres—helping to supply the general market, most of the trees are in small clusters or scattered. In the county there are enough orange trees to cover 106 acres, and ten acres of lemons.

The citrus fair which has been held annually at Cloverdale since the early nineties, has done much to stimulate interest, and in the north hardly a ranch lacks a small grove.

Commercially, the best opening is presented by the lemon, which is capable of development with good results. Sonoma County grapefruit also deserves more attention. Both are produced with a thin skin, good sugar content and plenty of juice.

The neglect of these openings is due to competition with the better understood, big-paying deciduous fruits.

The Grape

Sonoma County is first in California in the production of dry wines. It is the largest dry wine district in the United States, producing between 10,000,000 and 12,500,000 gallons annually in its 150 wineries and distilleries. The grape industry here represents an investment of more than $10,000,000, the result of thirty years of commercial production.

The Russian River Valley and the Sonoma Valley are immense wine regions. From Petaluma to Healdsburg and from Santa Rosa to Sonoma Valley floor and foothills are covered with vineyards; frequently it is possible to travel miles with vines flanking the road on each side.

The wine produced in the county in 1911 had a value of $2,000,500, according to the official estimate. There was $18,500 worth of brandy as well.

The vineyard acreage in the county is officially tabulated by townships as follows:

Township	Total Acres
Cloverdale	3,750
Geyserville	2,799
Washington	1,563
Knight's Valley	258
Mendocino	2,663
Russian River	1,315
Redwood	394
Fulton	2,107
Bellevue	409
Glen Ellen	268
Agua Caliente	395
San Luis	990
Gold Ridge	975
Forestville	1,449
Bodega	423
Bloomfield	49
Lakeville	382
Total	20,189

In the spring of 1911, at the Cloverdale railroad station alone the County Horticultural Commissioner inspected 200,000 imported resistant vines. There were many smaller shipments to other points. Besides these, there were planted more than an equal number of bench-grafted resistant vines which had been produced within the county.

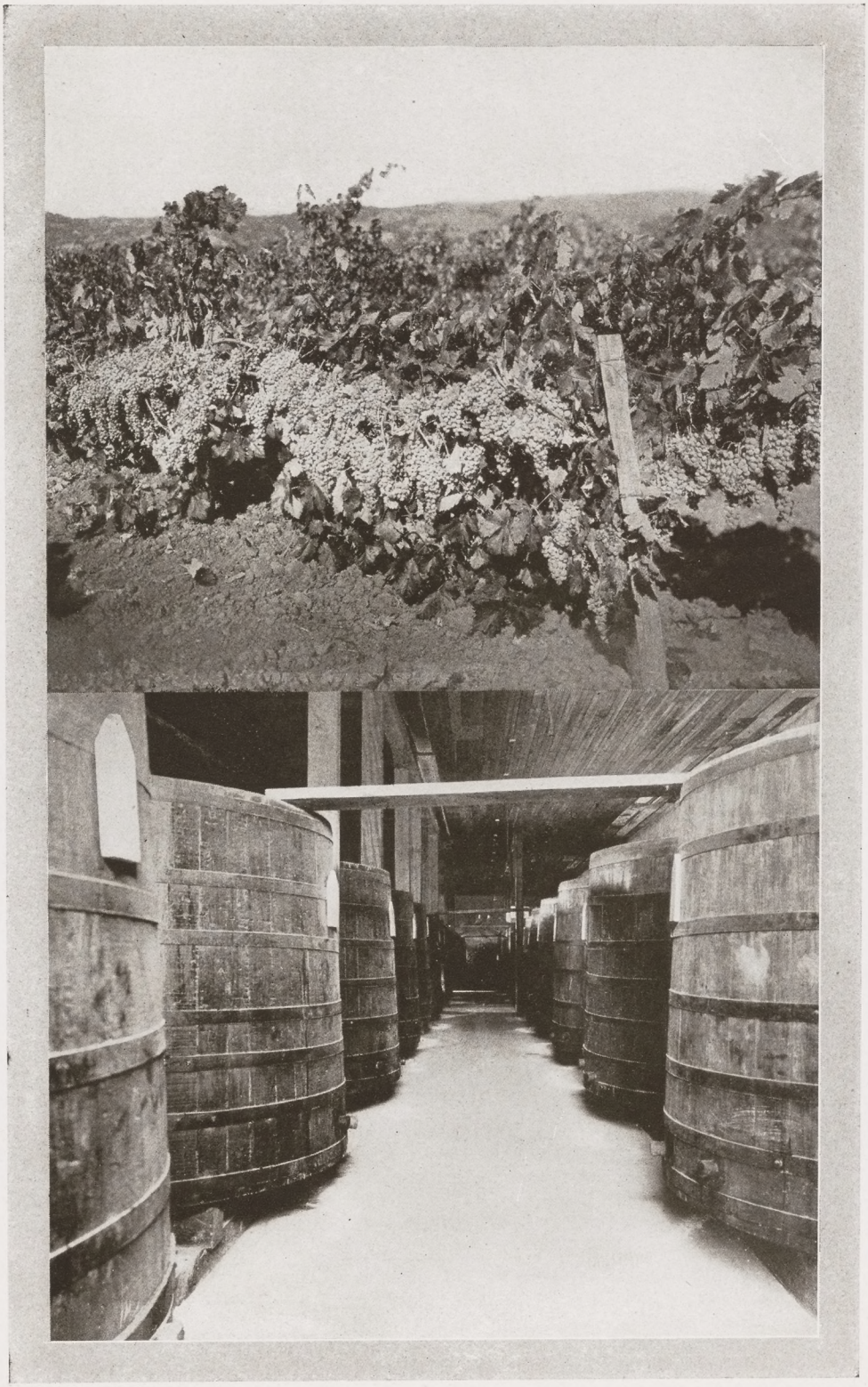
The cost of putting in a first-class resistant vineyard runs between $90 and $110 an acre.

The federal Department of Agriculture maintains an experimental vineyard at Geyserville.

The quality of Sonoma County's wines has been recognized abroad as well as at home. Here is a partial list of the expositions at which they have been awarded gold medals: Genoa, 1892; Dublin, 1892; Chicago, 1893; San Francisco, 1894; Bordeaux, 1895; Guatemala, C. A., 1897; Paris, 1900; Buffalo, 1901; St. Louis, 1904; Portland, Ore., 1905; Seattle (Alaska-Yukon-Pacific Exposition), 1909. At the St. Louis fair, a jury of twenty-one, the majority of whom were French and German experts, gave this county the highest award, the grand prize.

The pioneer champagne makers of California were Korbel Brothers of Korbel, whose product has won gold medals at state fairs as well as at the Portland Exposition. The Italian-Swiss Colony recently produced a champagne which won immediate recognition, being awarded medals in competition with the champagne of France at that same exposition of 1911.

There has been commercial recognition abroad as well. The shortness of the European production of 1910 enabled California growers to overcome the disadvantages of high duties and competition with the cheap labor of the continent, and Sonoma County wines were sold extensively in France, Germany, Belgium, Switzerland and Italy.



THE VINEYARDS ARE NOTED FOR QUANTITY AS WELL AS QUALITY OF PRODUCTS
WINE CELLAR OF ONE OF THE NUMEROUS WINERIES OF THE COUNTY

SANTA ROSA HOME

Sonoma County grapes are noted for their color and sugar content. With hill grapes, the sugar frequently runs as high as thirty and thirty-five per cent. In many of the smaller wineries especially, heavy wines predominate; these bring high prices, being used for blending.

One of the largest wine producers in the world, the Italian-Swiss Colony, has four large wineries in this county. That at Asti has a capacity of 4,000,000 gallons, and at Cloverdale, Fulton and Sebastopol there are plants with a capacity of 500,000 gallons each.

At Asti this company has the largest dry wine vineyard in America. Here also is the largest wine cistern in the world—a tank which indicates the scale on which wine-making is carried on in Sonoma County. With a capacity of 500,000 gallons, the tank is cut in solid rock, lined with a glazed-surface cement.

Besides the large production of the Italian-Swiss Colony in the Cloverdale district, this region produces 1,300,000 gallons of wine a year in its twenty-five other wineries.

The California Wine Association, the largest wine company in the world, also has extensive interests in the county. At Windsor and at Geyserville it has big wineries and vineyards, and there are large acreages elsewhere under the company's control, including the Madrone vineyards.

Several privately owned cellars rank with the foremost in point of capacity.

The Zinfandel and the Burgundy are the chief varieties.

For more than five years the price has averaged better than $15 a ton. In 1906 the growers got $15; in 1907, $22; in 1908, $15; in 1909, $14, and in 1910, $10. In 1911 the price rose to $18 and $20.

There are many other important varieties besides the two leaders. For instance, Frank A. Brush has sixty acres of young vineyard near Santa

SANTA ROSA CREEK, ONE OF THE BEAUTIFUL STREAMS OF THE COUNTY

Rosa planted to fine stock, including the Alicante Bouschet, the Petit Syrah, the Semillion, the Grand Noir and the Clairette Blanche. At Windsor this same grower has thirty-six acres in Petit Syrah and fifty-year-old Mission grapes which produce from eight to nine tons an acre each season.

F. B. Vadon of Cloverdale, at a recent State fair, exhibited a three-year-old Alicante Bouschet bearing eighty pounds of grapes.

Based on an average production of three and one-half to four tons an acre, the cost of growing grapes is between $6.50 and $7 a ton. The care varies greatly with individual conditions, of course, but here is a scale applying to scores of vineyards: pruning, $2.50 to $4 an acre; plowing and cultivating, twice each, $5 in all; sulphuring, ten pounds to the acre, three times, at three and one-half cents a pound, $1.05; picking, $1.25 a ton. Hauling, if necessary, can be estimated at a rate of eight or nine tons a day per wagon, hiring a man with his team at $4.50 a day.

On upland near Geyserville F. M. Patterson has forty acres in grapes. Four acres are young; the rest are from ten to twenty-five years old. In 1909 the thirty-six bearing acres yielded 155 tons; in 1910 they gave 127 tons and the following season 115. In 1908 this grower sold at $20, in 1909 at $15 and in 1910 at $12.

On bottom-land near Cloverdale George Brush has a sixty-acre vineyard, in which the mature vines range in age from ten to seventeen years. Ten tons an acre is the minimum yield from this, and in 1908 the production ran up to seventeen tons an acre for the average. For five years the price has ranged between $10 and $25 a ton.

Eighteen acres near Cloverdale produced 208 tons in one year; this is owned by John Burroughs. He considered his 1910 yield poor, but it was 185 tons. In 1911 he got 203 tons, sold at $18. This vineyard has not been plowed in five years, but has been thoroughly cultivated.

C. A. Yordi of Cloverdale has a ninety-acre vineyard on bottom-land One acre of this in 1910 produced twelve tons of Carrigan grapes as a first crop and six tons for the second crop. All young, the vineyard in 1911 produced 350 tons, and the grower, judging from experience, predicts a 700-ton yield in two years. His expenses are $6 an acre, besides $2 to $2.50 for pruning.

On light land the yield averages three tons, against seven or eight tons for bottom-land, in the forty-five-acre vineyard of Louis Bee near Cloverdale. In 1910 he sold the wine he made early in the season at ten cents a gallon, the profit in this manner equaling $4 a ton. One ton of grapes makes 140 to 145 gallons of wine.

The Berry

Sonoma County contains the largest berry district in the country. The Sebastopol region alone produced eighty per cent. of California's berry crop, and from Sebastopol there was shipped in 1910 a total of 1,825 tons. One ranch near this town, owned by Mrs. L. E. Barlow, has on it the largest berry patch in the world, covering over 100 acres.

Throughout the county the great berry production is the result of dry farming methods. The growers do not irrigate. This increases the sugar percentage and adds to the vitality of the plants, according to experienced growers. The crop has never failed and pests are unknown.

Sonoma County's value as a berry country is doubly proved by the fact that it is here Luther Burbank has developed his berry creations.

The county's official figures give the following acreage for 1911: Blackberries, 850 acres; raspberries, 250; currants, 50; gooseberries, 20; strawberries, 250; loganberries, 410. The total is 1,830 acres. The estimated

IN THE COAST COUNTRY ON RUSSIAN RIVER

A GLIMPSE OF THE SONOMA VALLEY

value of the blackberries, raspberries, strawberries and loganberries in this year is $181,000.

Climate and soil make for excellent berry results, but young orchards are another big factor. For the most part, berries are grown between the rows of young trees.

The Sebastopol territory is the biggest producer. There are favored spots elsewhere in the county for various kinds, and strawberries thrive at all points.

In the average year, three-fifths of the crop is canned or dried, the rest being marketed fresh. Canning is more popular than drying, the latter being resorted to only in years of unusually low prices. The Like-Frest evaporating method, a revolutionary process, is opening a new field, however.

After putting out a patch and staking it, the expenses are slight, one man caring for twenty-five acres easily. Picking costs from $12.50 to $15 a ton. Cultivating the berries benefits the trees. An eight-year-old orchard with berries which have been well cultivated is the equal of a ten-year-old orchard which has not been cultivated in this way, all other things being equal. The berries do not rob the trees of sustenance. The vines draw on the top soil, which is not utilized by the trees. There is no exhaustion of the soil unless the berries are left in too long.

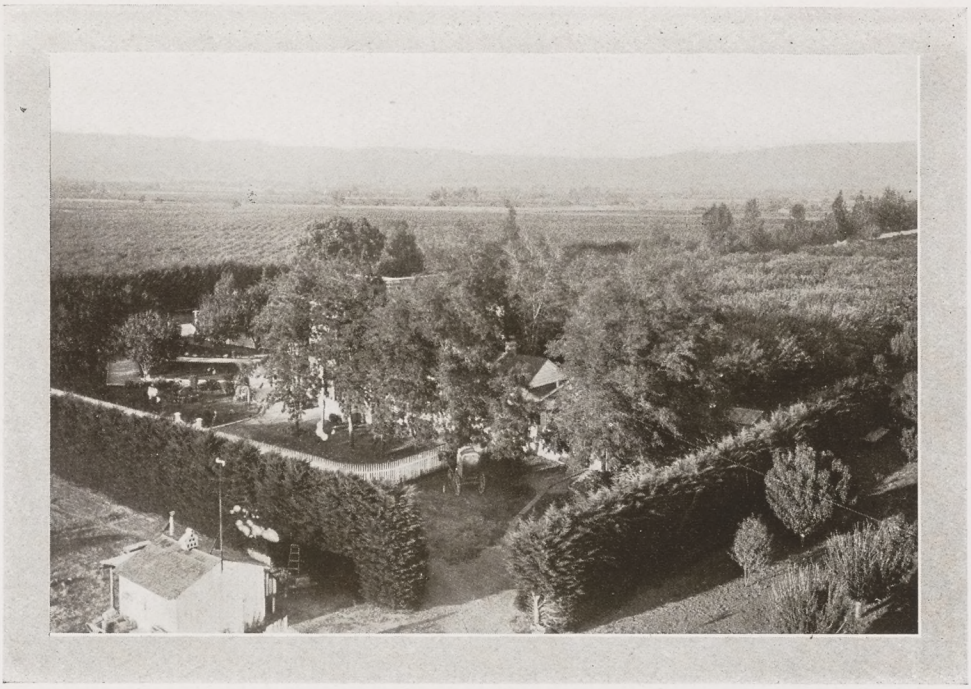
An average figure is $15 an acre for pruning and cultivating, and $15 a ton for gathering.

Raspberries average one ton to the acre, and strawberries three, though exceptional patches double that yield.

Loganberries run two to two and one-half tons.

Mammoth blackberries frequently return $500 an acre gross in large patches, the expenses being $100 an acre. Of the early blackberries, the Lawton yields three to four tons as a rule.

DAIRY HERD IN SONOMA COUNTY



RANCH HOME IN MIDST OF FERTILE ACRES

In 1909 the Sebastopol Berry Growers, Inc., was formed. When this exchange organized, prices were $30 to $35 a ton. In 1910 the scale was $48 for canning and $58 for shipping berries, averaging $53. In 1911 the average was about $57. This organization shipped eleven carloads east in its first year, and twenty-one cars in 1910. The 1911 season broke all years for price and production. Fresh berries were shipped to Chicago.

As an example of good growth, a Lawton blackberry vine was exhibited at the 1911 Sebastopol Apple Show which measured fourteen feet in height.

What may be obtained from a large patch was shown by the thirty acres Mrs. L. E. Barlow of Sebastopol has in Logans and Lawtons. In 1910 this patch produced seventy tons, worth on the average $58 a ton. This was obtained from between trees.

C E. Hotle of Sebastopol is one grower of Lawton blackberries who gets from two to two and one-half tons per acre, worth $45 to $60 a ton.

Six hundred baskets, weighing two and one-half pounds each, were taken from one-eighth of an acre of loganberries and mammoths by S. C. Miller of Sonoma City in 1910. He sold at fifteen cents a basket at the ranch or thirty-five cents retailed.

Poultry

"If a man can't make more than a dollar a hen a year, he ought to quit." That is a saying they have at Petaluma, and Petaluma is the largest poultry center in the world.

Sonoma County is a wonderful poultry country. The climate might have been made to order for the chicken raiser, and besides this, transportation facilities are excellent both for bringing in feed and getting out the product, and there is a big market close at hand

BABY CHICKS READY FOR SHIPMENT FROM PETALUMA

CHICKEN RANCH NEAR PETALUMA

From Petaluma, the poultry belt runs north for more than twenty miles and reaches almost as far east and west.

With no hot weather, gentle breezes on the warm days, and practical immunity from diseases, the Petaluma district is unexcelled. The best storage egg in the world comes from here: keeping longer than competing eggs, it is always in demand.

No one knows exactly how many hens there are even in Petaluma's immediate territory, but experts estimate the total to be between 1,500,000 and 2,000,000. The average egg production per hen is from 150 to 175 a year; 200, though considered a good result, is common. Many raisers average $2.25 net per hen a year in profits, but this is the maximum.

At Petaluma, a cash market, $10,000 is paid every day in the year for poultry and eggs.

The official census of chickens in the entire county is 4,520,416, and the value of poultry products is put at $5,000,000.

Over 1,250,000 dozen eggs are used annually in the thirty or more hatcheries around Petaluma. The production besides these is shown by the following table of shipments from Petaluma:

Year	Eggs	Poultry
1903	3,407,333	32,535
1904	3,493,321	33,286
1905	3,837,061	39,392
1906	4,334,321	39,938
1907	4,422,968	59,198
1908	5,312,804	83,136
1909	7,159,481	120,018
1910	7,288,215	76,278

The 1911 production is estimated at over 8,500,000 dozen, or more than 100,000,000 eggs.

The shipments of eggs and poultry from Petaluma in 1910, by months, was:

Month	Eggs	Poultry
January	416,800	3,570
February	705,305	3,361
March	906,318	4,531
April	995,608	5,136
May	871,248	7,589
June	694,984	10,277
July	521,242	8,151
August	523,940	9,313
September	406,946	8,634
October	384,676	6,245
November	426,640	5,474
December	434,328	3,997
Total	7,288,215	76,278

The egg shipments for other points in the county made in all 3,950,160 dozen.

In spite of the great output, there is no danger of over-production. San Francisco receives 15,000,000 dozen eggs yearly, and millions of dozens are shipped into California every season.

The standard for first grade eggs is a weight of one and five-sixths ounces or more, with a clean shell of good shape, and white. San Franciscans have a prejudice against brown eggs. The White Leghorn is the standard bird.

With prices averaging better than in the East, it costs the Petaluman six to eight cents a case to get his eggs to the San Francisco market, and chickens cost seventy-five cents a coop for transportation.

Besides the general market, there is a big field in supplying the hatcheries, which pay from five to ten cents above the current prices for good eggs.

The shipments of baby chicks are immense; in 1910 more than 2,000,000 were sent from Petaluma by the thirty hatcheries in the district. This business is growing. In December the orders are usually so heavy as to give a market for the entire production through April.

The largest hatchery and the largest hennery in the world are in this country.

Coal oil, electricity and distillate are used in the hatcheries, but gas has come into favor to a great extent. The Pacific Gas and Electric Company furnishes gas to hatcheries having a total capacity of 662,400 chicks at a single hatch, including the Bihn Hatchery, 165,000 egg capacity; the Must Hatch Incubator Company, 140,000; L. W. Clark, 60,000; Nisson Brothers, 36,000; Joseph Doss, 25,000; George Lasher, 50,000; W. Sales, 40,000; the Western Hatchery, 30,000, and the White Hatchery, 50,000.

The largest incubator factory in the world, that of the Petaluma Incubator Company, is at Petaluma.

Five acres is the average size of the chicken ranches. As a rule, from 500 to 2,000 hens are kept on this much land. A proper equipment on this scale represents an investment of from $3,000 to $5,000, but with $1,500 a start can be made on a renting basis.

Many poultrymen run cows and chickens together, this giving better results than any other combination.

The Petaluma River is one cause of poultry success around Petaluma, giving cheap transportation for imports of feed. Four hundred tons of feed are used daily, the chief kinds being wheat, corn, barley, bran and middlings. A great deal of feed is manufactured here, much of which is shipped out. Many poultrymen make their own feed. Kale, one of the staples, grows luxuriantly.

Hops

One of the largest hop producers in America, Sonoma County grows nearly half of California's output. In an average year the value of this business alone to Santa Rosa is between $2,000,000 and $2,500,000. In the county there are close to 6,000 acres of hop yards, and it is estimated that for years the general average production has been six and one-half bales, or 1,235 pounds, an acre. Sometimes this is almost tripled. The average of the Russian River bottom-lands is 1,700 pounds.

The price figures from 1895 to 1910 show that the average quotation on September 1st is a fraction less than fourteen cents. Production costs from seven and one-half to ten cents. In 1911, with the foreign crop short, hops sold at forty-five cents and more.

Sonoma County hops are the basis of market quotations throughout the world.

The yards of this county are exceptionally healthy, the dry summer protecting the growth.

About a third of the hop fields lie around Healdsburg, from Geyserville on the north to Windsor in the south. Russian River bottom-lands are the favorite soil.

W. H. McCutcheon of Healdsburg has twenty-eight acres of bottom lands which for five years, he says, have averaged 2,200 pounds an acre, in one season giving 2,500. It costs this grower seven and one-half to eight cents a pound to produce, or ten including the land rental. This land is worth $500 an acre. For five years the net profit per acre has been $100 a year; one year it was $300. This has been made on sales as low as five and one-half cents and up to twenty-five. Part of the crop is contracted for three or five years, leaving a surplus to sell at current prices in high years, such as 1911.

Twenty-one acres of hops give F. A. Brush of Santa Rosa from seventy-eight to one hundred and ten bales. For several years he has averaged fifteen cents, leaving a profit of more than five cents a pound. In 1910 he got from sixteen to twenty-six cents. In 1911 he got $8,200 from fifteen acres in actual hops, the rest of the land being devoted to dryers and buildings.

It costs A. H. Flournoy of Healdsburg nine cents a pound to produce hops in his 200-acre yard, which averages 1,500 pounds to the acre but has at times given twice that. He has a four-year contract at twelve and one-half cents for part of the crop, and his highest net profit in recent years previous to 1911 has been twenty-one cents a pound. Could he have sold his entire 1911 crop at current prices he would have got $120,000 from the 200 acres, but even with part contracted he made $60,000.

Other growers near Healdsburg who have secured high yields are E. Peterson and Cellie Jones. A ton and one-half to the acre was their production in 1910, sold at twenty cents a pound.

Vegetables

The vegetable production of the county is worth over $600,000 annually. Nearly all kinds do well. In many instances vegetables are grown between the rows of young trees or vines.

P. W. Huntoon of Windsor got 300 sacks, or 33,000 pounds, from an acre of onions in 1911, which was not an exceptional year. In 1907 he got as high as five cents a pound and in 1911 he got three cents retail and one and one-half wholesale. His average gross returns are $500 an acre, the

KENTUCKY STREET, PETALUMA, LOOKING SOUTH—MAIN STREET, PETALUMA, LOOKING NORTH

RESIDENCES, PETALUMA

highest being $1,650. Plants cost $85 an acre, cultivation costs $35, and picking $17.50, leaving $362.50 for a net average.

Sweet corn returns $100 an acre to S. C. Miller, who has an irrigated garden near Sonoma city, and his tomatoes bring in net profits at the rate of $800 an acre, running thirty tons to the acre in a patch of less than one acre. Tomatoes are frequently grown between young trees, and in this way give from twenty to twenty-five tons to the acre, worth $6 to $7.50 a ton. This is not practised after the trees are four years old.

Onions yield 500 sacks to the acre, at $1 a sack, on N. Remizano's ranch near Sonoma city. Eight acres in mixed vegetables bring in $1,000 net here on rented ground.

Asparagus thrives in the moist lands along the Petaluma River, and some of the first product of the season is shipped from Petaluma. In this region there are more than one hundred acres given over to this vegetable, the returns sometimes going to $110 an acre.

Nearness to the ocean makes most of the county a good field for potatoes, and along the coast the yields run high, ten tons to the acre frequently being secured. That potatoes are successful is shown by the large acreage—2,725 acres in all. The output is worth $120,000 a year.

For the most part, melons and squash are grown between the rows of young trees. Of melons alone there are 250 acres in the county.

S. C. Miller of Sonoma city has one acre of watermelons and muskmelons. Of the former, two rows each twenty rods long return him $35 a season, picking beginning August 15th. He also grows the casaba melon for winter and fall use. His cantaloupes are profitable. He irrigates his melons twice a month till they begin to mature.

There are several crops which have been demonstrated to be successful, but which are not now on a commercial basis. Tobacco was grown for the

market for several years at Guerneville by David Hetzel and would be a profitable crop elsewhere. Cotton is another such crop; tests made by Simon Pinschower of Cloverdale gave very satisfactory results. Tea has been successfully cultivated by John Schindler of Melitta.

Alfalfa, Cereals and Hay

In grain and alfalfa hay and cereals, Sonoma County loses nothing of its prestige.

Success with alfalfa is one cause of the county's standing as a dairy region. Though this crop is not irrigated here, the yield is heavy. Eight to ten tons to the acre, with five cuttings a year, is the average yield secured by George Brush of Cloverdale, for instance. He has twenty acres of alfalfa. His hay sells at $10 loose.

Four cuttings a year is near the average on all kinds of soil, and the yield is usually between seven and ten tons, worth from $8 to $10.

Bottom-land is excellent for this crop, which is a famous soil builder. In its first year, a patch of bottom-land alfalfa gave E. Steiger of Sonoma city five cuttings averaging a ton each to the acre. John McClish of Healdsburg got as many cuttings in 1910 on bottom-land, but the yield was twice as heavy, the alfalfa being matured. The McClish ranch some years ago won the California State silver cup for corn and wheat, giving 105 bushels of the former and 100 of the latter per acre.

Against 350 acres of alfalfa, there are in the county 6,100 acres of oats, 5,000 of wheat, 1,800 of barley and 1,570 of corn, besides 38,560 planted to grain hay. The cereals are grown principally for home consumption. The value of the 1911 grain hay crop is put at $600,000, and the values of the marketed cereals thus: Wheat, $41,000; oats, $123,000; barley, $12,000; corn, $23,000.

The coast is a particularly heavy yielder of oats but this crop does excellently in the valleys. S. C. Miller of Sonoma city got four tons of oat hay to the acre in 1911, summer-fallowing. It sold at $12. D. J. Davis of Santa Rosa got six tons to the acre, dry farmed.

On bottom-land, wheat hay ran four tons to the acre in 1910 on the Robert Hall ranch, near Sonoma City. Oats and wheat have been alternated on this land.

It is safe to expect from thirty to forty bushels of oats and barley to the acre, and twenty to twenty-five of wheat, but oats at times run to a hundred bushels.

Dairying

Whether inland or in the specialized dairy territory along the coast, the dairyman in this county has not only excellent general conditions but ready access to San Francisco, the largest market in the State. The feed question has no difficulties, it being possible to have green feed twelve months in the year. This is one reason why the dairyman here can maintain his herd with only sixty per cent. of the expense of his eastern competitor.

The Sonoma County coast dairyman makes an average annual profit per head of about $75, including by-products. That figure is based on the returns of sufficient scope to show what the 10,000 cows milked in this region are actually doing.

For the most part, oats and wheat are fed on the coast but there are over a hundred acres of alfalfa as well.

The importance of dairying can be judged from the official estimate of the value of dairy products in the fiscal year 1910-11. The butter output was worth $510,500, and that of cheese $11,200.

In the coast region there are seven creameries. The Petaluma district has one of the cheese factories.

A typical coast dairyman is R. T. Kee of Bodega, who milks seventy-five cows. The average production of butter fat per head is 141½ pounds a year, though as high as 200 pounds is secured. The 1911 price of butter fat was thirty-eight cents. The average net returns per cow are $6.50, but $12 a month is not uncommon, excluding the profits on calves and pigs.

A blooded Jersey dairy at Healdsburg gave John McClish a net profit per head of $138 a year.

Live Stock

There is a great deal of land in the county suitable for stock, and the general conditions are favorable. Here is the official census of stock in the county for 1911:

Horses and mules	32,000
Cows and calves	18,700
Sheep and lambs	32,875
Goats	2,590
Hogs	3,550

Cattle-raising is confined principally to the northern part of the county. The present conditions can be judged by one sale made in the summer of 1911. George Haigh of Healdsburg sold thirty head of beef cattle at an average of $62.50 a head. This was at the high prices of the 1911 season, however.

That Sonoma County can produce fine horses has been demonstrated many times. Santa Rosa has turned out the fastest trotting horses in the world: Lou Dillon (1:58½) and Sonoma Girl (2:05½) were born and raised here. The famous Spreckels ranch is nearby.

Hogs are profitable in vineyards and orchards, making money of waste, as well as when adjuncts of dairies.

Cloverdale is one of the most important wool shipping points in California. The spring wool clip sale of June, 1911, was the biggest in the state, 252,242 pounds being disposed of.

One acre of range will keep a sheep a year. Humbert & Edwards have a 5,200-acre ranch near Cloverdale, running 3,000 head of sheep, Merinos. In 1909 they raised a thousand lambs; in the following year, 950; in 1911, a thousand lambs. The band is run out the year through, without sheds or herders. Sheared once, wethers and young sheep average eight and a half pounds of wool a year; old sheep, six. Shearing costs seven and a half cents a head.

Hubert G. Comstock of Santa Rosa had 243 ewes. On July 1, 1911, he sold 276 lambs at $4 a head. All of these were born after February 10, 1911. Some weighed when sold 110 pounds.

Power and Manufacturing

With free sites offered in many towns for manufacturing purposes, with an excellent transportation system and ample power, the county has a strong basis for an appeal to manufacturers. The Pacific Gas & Electric Company, the largest power corporation in the state, serves the county,

SANTA ROSA, LOOKING EAST ON FOURTH STREET

and there are other companies, including the Cloverdale Light & Power Company, which gets power from one of California's largest generating plants.

At present the manufacturing interests include meat-packing plants, tanneries, flour mills, shoe factories, brick yards, a silk mill, foundries, machine shops, paper box factories, shirt factories, paste factories and a glove factory. Canneries and fruit processing plants are numerous. Petaluma and Santa Rosa are the most important manufacturing centers.

Timber

The famous redwood belt of California, stretching along the north coast, begins in Sonoma County. Sugar pine, frost pine and tan oak are found extensively, and are utilized to some extent. Cloverdale is one of California's important shipping points for tanbark.

The chief trees, besides these, include cascara, madrone, live- and black-oak, maple, buckeye, mulberry, locust, pepperwood, willow, hazel and manzanita. Cork is produced near the city of Sonoma.

County statistics for 1910-11 show the wood products to have these values: charcoal, $2,500; wood, $120,000; lumber, $700,000; posts, ties, pickets, etc., $95,000—in all, $917,500. That means nearly a million dollars brought into the county yearly by one of the lesser industries.

The county has six lumber mills, situated in the coast territory.

The eucalyptus is being planted extensively in the county. This tree, growing ten times as fast as the white oak, is regarded as the future source of America's hardwood supply. It is estimated that in eight or ten years the profits per acre on a eucalyptus grove should be, with proper care, from $500 to $1,000. In the spring of 1911 there were planted 25,000 trees.

Mining

Sonoma County is not ranked among the important mining counties of the State, yet in the ten years 1900-1909 its total mineral output was $2,715,071, the items including brick, clay, gems, granite, graphite, lime, macadam, magnesite, mineral paint, mineral water, paving blocks, quicksilver and rubble. In 1909 the total production was $389,792; in 1910 it was $420,084.

Quicksilver is the chief metal produced. There is a mine twenty miles east of Cloverdale which has been operated for thirty years. A forty ton plant is now being installed here by the Culver Bear Mining Company at a cost of $200,000, including tunnels, furnace and other development work.

There are many unworked deposits of various minerals. Oil and asphalt deposits have been found in the Sonoma Valley, and gold, silver and copper are found scattered.

Near Healdsburg there is barite, brown marble, granite, chalcedony, horneblende and mica with adamantine garnets. Bodega has sandstone and granite. Sandstone is also found near Sebastopol, as are feldspar with oxide of iron, jasper and rose quartz. There are coal deposits near Mark West, and at Stony Point limestone, tufa, quartz and basalt are found, and in the Geyser district potash, magnesia, phosphate and pure sulphur. Guerneville has quicksilver and ochre, and Petaluma has granite.

Obsidian volcanic glass, magnetite and cromite are available elsewhere.

Brick is made at Glen Ellen and Hilton, and near Sonoma is a quarry employing a hundred and fifty men.

POST-OFFICE AT SANTA ROSA

Cities and Towns

Santa Rosa, a beautiful city of 12,000, fifty miles north of San Francisco, is the county seat. It was one of the first cities in America to furnish water free to inhabitants, and it has many other distinctions which indicate its modernity and prosperity. Not the least of these is the character of its buildings, including the fireproof $500,000 courthouse, completed in 1910. This city has more steel frame and reinforced concrete buildings than any other town of its size on the Pacific Coast, and its general structural standard, together with the good protection given by the paid fire department, is such that insurance rates are low. The postoffice is an attractive building which cost $70,000.

There are a dozen public and private schools, including the St. Rose Seminary.

The caliber of the tributary country is such that Santa Rosa has a solid foundation, and it has large manufacturing interests. Besides several wineries, the cannery of the California Fruit Canners' Association employs 400 hands. The Santa Rosa Shoe Factory and Tannery has 160 employes, and two other tanneries employ half as many. There is a foundry, a large flour mill, a shirt factory with 75 employes, a glove factory and a brewery and creamery with 200 employes. Here is also the plant of the National Ice & Cold Storage Company, where fifty employes are kept busy icing fruit and egg shipments. There are, besides macaroni factories, marble works, a box factory and planing mills.

At his home in Santa Rosa Luther Burbank has extensive experimental gardens.

Petaluma, at the head of navigation on the Petaluma River, is thirty-seven miles north of San Francisco. It is an attractive city with more

ONE OF THE PETALUMA GRAMMAR SCHOOLS

than its normal share of pretty homes. Being a cash market it is always busy. The population is officially 8,000, but as the city limits embrace a small territory, the actual population is nearer 10,000.

The public buildings are attractive; the Public Library, for instance, costing $25,000, is built of stone quarried nearby. There are seven schools, including St. Vincent's convent, and one of the new public schools cost $40,000. There are three parks; one, covering sixty-five acres, cost $20,000.

Fuel oil is cheap here, and electric power costs about half as much as elsewhere in California, on the average. There are good factory sites available and the transportation service by land or water is excellent. So manufacturing is important. The only silk mill west of the Mississippi, that of the Carlson-Currier Company, employing 150 hands, is situated here. The Petaluma Tanning & Manufacturing Company has eighteen employes and the Nolan-Earl Shoe Company, making 500 pairs of shoes a day, 100 employes. This firm gets a large proportion of its raw material in the county. The Camm & Hedges Company, operating two planing mills with sixty employes, is a lumber shipping factor as far away as Honolulu. The Pacific Hardwood Manufacturing Company has a plant here. The Poehlmann Tannery, with fifteen employes, is important in its line. The Western Refrigerating Company has a large plant in Petaluma, and the Eloeser-Heyneman Company employs 175 hands in producing $500,000 worth of garments a year. The Corliss Gas Engine Company's plant, with thirty employes, is said to be the best equipped of its kind in California.

The Lachman & Jacobi winery is also here. The firm came to Petaluma immediately after the great fire in San Francisco, the inducements being the excellent railroad and water facilities combined with the even temperature of the climate. This plant represents an investment of over $2,000,000. No grapes are crushed; the wine is shipped in from all parts of the county and state and refined and aged here. In 1910 this firm handled over

PETALUMA RIVER AT PETALUMA

10,000,000 gallons of wine, exclusive of brandies. An average of five carloads of wine is shipped each day in the year to eastern points, the shipments being by rail or steamer and transferred to deep-water vessels in San Francisco harbor. In this plant there are eighteen solid concrete containers, lined with plate glass, each of them having a capacity of 30,500 gallons; fifty wooden tanks, the capacity of each being 42,000 gallons; fifty wooden tanks with a capacity of 36,000 gallons each, and a large number of smaller tanks. There is also connected with the winery a large bonded warehouse containing over 500,000 gallons under the supervision of the United States government. The firm employs eighty experienced men.

The factory of the California Saddle & Saddletree Company here is the only one of its kind west of the Mississippi.

The poultry business indirectly adds to the manufacturing output. There are several feed factories. That of George P. McNear, who has seventy-five employes in this and his other businesses, is important, and the Golden Eagle Milling Company, with sixty employes, has an output of 250 barrels of flour a day and twenty-five tons of feed. There are egg-box and coop factories and several incubator factories, the largest of which is the plant of the Petaluma Incubator Company, with 130 hands, doing a business of $300,000 a year.

Sebastopol, with 2,000 inhabitants, is the heart of the Gold Ridge, embracing an area fourteen miles by seven, from which the shipments in 1910 included 215,000 boxes of apples; 1,400 tons of dried apples; 2,217 bales of hops; 12,000 tons of grapes; 800 tons of cherries; 400 tons of pears; 65 tons of peaches; 650 tons of dried prunes; 1,725 tons of berries; and 1,400,000 dozen eggs, besides $67,138 worth of poultry. With two railroads, this is destined to be the hub of a more extensive electric system. Besides a big winery and a cannery with 400 employes, there are six fruit packing-houses here. Sebastopol has a $20,000 grammar school and a

SANTA ROSA FREE LIBRARY

$30,000 high school. The water plant is municipally owned and there is an extensive sewer system, besides a park and five miles of cement sidewalks. Luther Burbank's principal gardens are situated close to the town limits.

Healdsburg, an incorporated city of 3,000 on the Russian River, is attractive as a place of residence and its commerce can be estimated from the fruit shipments, 1,000 carloads a year. The city owns its water and light plant, whose rates are exceedingly low. Here there is a $35,000 grammar school, besides the high school, and a $10,000 library. Three canneries and three big fruit packing-houses represent manufactures, but there are many good openings, including the development of cement deposits, a pickle factory and a denatured alcohol distillery.

Cloverdale, with 1,300 inhabitants, is frequently called the Orange City. Here the Russian River is within a stone's throw of the heart of town and nearby are valuable mineral springs. The city owns its water system and has installed an $18,000 sewer system. The largest winery in the State is at Cloverdale, and half a dozen important crops add to its solidity. In the vicinity there are quicksilver, copper and magnesite mines.

Geyserville, on the main line of the Northwestern Pacific and close to the Russian River, is not only the trading center for a rich territory but has many resorts in its vicinity.

Windsor, also on the main line, south of Healdsburg, is in the heart of one of the richest fruit and farming sections of the State. Immense shipments are sent each season from this up-to-date and prosperous town of six hundred.

Fulton, containing 250 people, is a producer of hops, prunes and grapes, north of Santa Rosa. It is a junction on the Northwestern Pacific.

Sonoma city, the historic town in the valley which gave the county its name, has 1,300 inhabitants. In the surrounding territory more than forty families have settled within a year, and the town itself gained over a hundred per cent. in population between 1900 and 1910. Here are a brewery, a planing mill and two ice plants, besides a 200,000-gallon winery and several chicken hatcheries with an output of over 200,000 chickens a year. Incidentally, this city lies in an artesian belt, and it is three miles from tidewater, San Pablo Bay. A $20,000 sewer system has just been installed. The other public works include a $27,000 city hall in a park. It is noteworthy that products grown in this vicinity have taken premiums at the Mechanics' Institute of San Francisco as the best displays of citrus fruits, vegetables, table grapes and farm products. Olive oil from here took first premium at Paris in 1900, and Sonoma Valley wines took a grand prize at St. Louis as well as at several other important expositions.

Glen Ellen, near which is the Eldridge State Home for Feeble Minded Children, is in the Sonoma Valley. Jack London, the writer, has a ranch-home near here. El Verano is also in this valley.

Penn Grove and Cotati, tributary to Petaluma, are farming centers in the main valley.

Forestville, a town of 250, one terminal of the electric railway, is in the Gold Ridge district, as is also Graton, with 200 inhabitants. Both are big fruit shippers, Graton being especally noted for its cherries.

Guerneville is the principal of the coast towns. With a population of 800, it is an important dairy, fruit and lumber center, its apples being especially fine.

There are several interesting and busy towns in the coast region. Cazadero, well-known for the beauty of its surroundings, is an important dairy center. Dairying also lends prestige to Occidental (population 700), Valley Ford (population 250) and Bodega (population 300). Bloomfield (population 400) is known for its grain, potatoes and dairy products. Freestone (population 150) has a sawmill. Duncan Mills is also a heavy lumber shipper. Monte Rio, best known for its resorts, has a permanent population of 200, but in summer is the home of from 2,000 to 3,000 people. On the north, on the coast, are Fiske's Mill and historic Fort Ross.

For further information and literature address:

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Sebastopol Chamber of Commerce	Sebastopol
Cloverdale Chamber of Commerce	Cloverdale
Sonoma Chamber of Commerce	Sonoma
Guerneville Improvement Club	Guerneville
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